THE PHARMACIST:

PUBLISHED BY THE

CHICAGO COLLEGE OF PHARMACY.

VOL. VII.

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E. H. SARGENT, THOS. WHITFIELD, HENRY BIROTH,

PUBLISHING COMMITTEE.

J. J. SIDDALL, BUSINESS EDITOR.

CHICAGO:
BASSETT & MITCHELL, PRINTERS,
12 & 14 LA SALLE STREET.

1874.

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THE PHARMACIST.

VOL. VII. CHICAGO, JANUARY, 1874. No. 1.

SYRUP OF WILD CHERRY.

BY R. ROTHER.

On a former occasion the writer has already alluded to the improper application of a coarse powder in the production of this syrup. (PHARMACIST, March, 1872.)

On this occasion the writer again emphasizes his former suggestion in regard to the necessity of using a fine powder if it is desired to utilize the raw material to its fullest extent, and produce a preparation which possesses the intended requirements. The writer also adds further improvements in the manipulation whereby, without alteration in the formula, the result can be brought to that degree of intrinsic value and perfect representation of the total activity derivable from the bark under no other known conditions.

On the occasion referred to, the writer explained that the percolate, especially with the application of a fine powder, was often turbid, and that this sediment, although passing through a filter, otherwise could be wholly removed by filtration through magnesium carbonate. This sediment subsided gradually and adhered compactly at the bottom of the receptacle, but its formation was for a time continuous, so that it became necessary to complete the syrup as soon as the advanced stage of the percolation admitted. That is in order to avoid this apparent decomposition the percolate was added to the sugar in successive portions before the percolation was finished.

The writer, however, found that if sufficient time is given before the percolation is commenced, the turbidity will lodge within the interstices of the powder. Under these circumstances the percolate was most usually clear, but the writer preferred not to delay the operation on this account, since this prolonged exposure sacrificed to much of the generated cyanhydric acid, this constituting really the aim of the operation aside from all other considerations.

It was however found that if the finished percolate containing sediment, is again passed through a shallow layer of the exhausted residue, a clear liquid is obtained.

The reddish deposit readily dissolves after the sugar is added, but a flocculent turbidity always remained undissolved. In order to avoid this the writer subjected the turbid percolate to a filtration through

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magnesium carbonate, and thereby effected the total removal of both the insoluble bodies. A syrup of permanent brightness was invariably the result.

The writer feeling averse to the introduction of auxiliary agents, or multiplication of means, to attain the desired end, sought for a method which securing the sum of the effects, concentrated within the prescribed material, should be simple in application and convenient in execution,

Having observed the ready solubility of the sediment on the addition of sugar, the writer concluded to employ a syrupy mentruum directly for the exhaustion, in place of simply water, as officinally prescribed. This important modification resulted entirely successful. The saccharine percolate was strongly charged with cyanhydric acid and volatile oil as indicated by the odor, was dark colored, perfectly clear, and remained permanently bright. The taste of the percolate was also remarkably bitter compared with the product obtained from the same lot of bark with water alone.

There is no doubt but that sugar in moderately concentrated solution retards or wholly prevents the separation of peculiar vegetable principles. Heat, as also time, often produces very perceptible changes in the mixed constituents of vegetable material, extracted by means of ordinary alcoholic menstrua. There is evidently a difference in the resulting products as produced either by percolation with a syrupy solvent directly, or by dissolving a condensed residue of an alcoholic solvent in a syrupy liquid. The action of sugar in concentrated solution, determines in the aggregation of the crude material a coalition of affinities, which is prevented or destroyed by means of solvents containing no sugar. It is, however, necessary on such occasions to use strong solutions of sugar, since in numerous instances a weak solution is either inferior in effect or totally inactive.

It is the conviction of the writer that the peculiar difference presented between concentrated and diluted solutions of vegetable matter, is simply based upon an action analagous to that of sugar. Thus alcoholic liquids holding in perfect solution the soluble constituents of some peculiar drug, when evaporated to an extractive consistency often yield a dense syrupy liquid, of perfect transparency when viewed in thin layers, showing thereby that the mixture is homogeneous in character. This apparent solution when diluted with water, however frequently, produces a turbid mixture from which an abundant precipitate sooner or later subsides. The addition of sugar to such a turbid fluid, if in proper proportion, will often totally restore the transparency with the production of a perfect solution. In case of rhubarb and various other bodies this can not be effected directly, but if the residue is previously treated with ammonia, and the excess of this again expelled by heat, then the second residue will perfectly and permanently dissolve in syrup. (PHARMACIST, Dec. 1872). The writer assumes that in a concentrated solution of vegetable matter, the homogeneity is preserved by extractive, which is probably nothing more than modified gum, and that this acts precisely analagous to a dense solution of sugar, PHARMACIST, Oct. 1873).

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Several years since, just as the glycerin method had entered a new phase, the writer applied glycerin in various degrees of dilution in experiments with fluid extract of wild cherry. It was then found that glycerin (one in 4) retarded the generation of cyanhydric acid very materially, so much so that the subsequent aqueous portions of the percolate apparently contained more cyanhydric acid than the first two pints of glycerin percolate from 16 troy ounces of the bark in fine powder.

Later the writer attempted to determine the relative strength of the various extracts obtained with different menstrua, and resorted to precipitation of the cyanhydric acid by means of argentic nitrate. A very voluminous brown precipitate resulted in the simply aqueous percolate, which was intended to represent the standard of comparison for all the other results with diverse menstrua. The impure argentic cyanide containing argentic tannate, chloride, coloring matter, &c., should now have been distilled with chlorhydric acid, the distillate reprecipitated with argentic nitrate, the precipitate collected, dried, weighed, and again decomposed with chlorhydric acid, the resulting argentic chloride weighed, and the cyanhydric acid calculated from these data.

This process, however, was too impracticable, and therefore the writer endeavored to separate the argentic cyanide from this precipitate by means of a saturated solution of sodium sulphite.

A preliminary trial was made, and it was found that the argentic chloride yielded by one part argentic nitrate was soluble in a saturated solution of 5 parts anhydrous sodium sulphite. The cyanide was found to be rather less soluble. However, it was ascertained that in each instance, no matter with how much of the sulphite in excess, a small remnant always remained undissolved. This being the case the writer also abandoned this method, and altogether discontinued the effort for finding a ready method of assay. Had the chloride and cyanide completely dissolved in the sulphite, this might have given an eligible method for purifying the colored precipitate obtained from the percolate, because the sulphite solutions when acidulated threw down the chloride or cyanide completely.

The syrupy percolate apparently extracted not only all the amygdalin, but more than the usual amount of astringency, together with another principle heretofore unobserved, through the action of which the cane sugar in the syrup prepared from this percolate, was totally converted into glucose in a very short time. This remarkable fact attracted the attention of the writer by reason of the gummy nature of the residue, when the syrup was exposed so as to evaporate spontaneously, the uncrystallizable residue dissolved in or rather mixed readily with strong alcohol, from which solution no trace of crystallized cane sugar could be obtained.

It is not probable that emulsin would cause this effect, since the disruption of amygdalin through its presence results in cyanhydric acid, oil of bitter almonds, and *cane* sugar. Furthermore since tannin precipitates emulsin, it becomes probable that in presence of wa er alone the action of tannin upon emulsin must rapidly close its decomposing influence upon the amygdalin.

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But it is highly probable that syrup dissolves the tannin precipitate, and therefore it appears that a syrupy mentruum can only exhaust the representative elements of the bark completely.

Syrup of wild cherry can only be prepared properly without the application of heat for dissolving the sugar. But when skillfully managed the syrup can be speedily and elegantly prepared in the cold. Orynski (Proceedings Am. Pharm. Ass., 1871) has again suggested the old but elegant method of preparing syrups by means of percolation. This efficient method is not generally popular for preparing medicinal syrups, by reason of some slight complicity in the management of the process.

Most operators employed powdered sugar with this method, which rendered it tedious and unsatisfactory. Nevertheless it was much used especially in the preparation of fruit syrups. The first intimation the writer received of this process was about twelve years since.

It was executed by means of an apparatus contrived by Mr. C. Eberbach, of Ann Arbor, Mich. An upright, nearly cylindrical, wooden vessel, holding about 20 gallons, was furnished with a numerously perforated false bottom, inserted at about one-third the hight from the lower base. Near the bottom a faucet was inserted, and immediately below the diaphragm a minute orifice was made for allowing the air to escape from the lower apartment when the apparatus was in use. The diaphragm was covered with a flannel cloth, and the crushed not powdered sugar then introduced so as to fill the vessel completely. The requisite volume of water was now poured on, and the operation allowed to proceed. A sufficient amount of sugar was, however, always used, so that an excess would remain undissolved, this rendered it possible of producing a syrup of uniform density, and free from any possible turbidity, which would invariably result when the sugar had totally dissolved.

This apparatus was only employed for preparing simple syrup. The medicated syrups not producible by the application of simple syrup were always made by the usual methods through the use of heat.

The method of percolation for preparing syrups in general, is neither necessary or practical, but a number of medicinal syrups are preferably prepared by this process. When properly managed, which requires a moderate degree of care and attention, the resulting syrup will be brighter in appearance than when made by dissolving the sugar by heat and simply straining. One great objection to this method is the necessity for using an excess of sugar. If this precaution is not observed the product will differ in no way from that made by simply dissolving the sugar either in the cold or with heat and straining. But in the production of the officinal syrups by this method, the remaining sugar would retain a considerable portion of the aqueous liquid holding in solution the medicinal agent, consequently the preparation would lack uniformity, unless the solution of the active substance is employed in a more concentrated form, so that the last portion of liquid remaining in the residuary sugar could be replaced by merely water. Then, however, this modification would incur the loss

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of a large amount of sugar, and this drawback more than counter-balance the actual advantage otherwise gained.

For the preparation of such syrups where heat is absolutely inadmissible, the writer applies a modification of this method, which secures all the special benefits of percolation, and at the same time prevents any loss of valuable material. This consists in the use of crushed sugar, which is placed into a glass percolator, forming a moderately high column; one-third of the whole liquid is then slowly poured on, and before the liquid reaches the bottom of the percolator the lower apperture is closed, and if now the sugar has not entirely crumbled, the disintegration is aided by stirring with a wooden stick. The dense syrup will rapidly sink to the bottom; the outflow is then permitted by opening the orifice, and as the liquid disappears from the surface of the sugar other portions are added, so that a lighter stratum of liquid shall supervene without intermission. After two-thirds of all the liquid is added, the percolate is removed, and the subsequent portion collected separately until the flow of percolate becomes rapid and the column of sugar quite low; the receiver is then changed and the percolation continued until all the menstrum has been added or all the sugar diminished. This final or third portion of the percolate will be a turbid, thin, syrupy liquid, which is now filtered through paper, added to the first two portions, and the whole well mixed. If all the menstrum has passed through and some sugar should remain undissolved, it is rinsed into the final percolate by aid of a portion of this, the mixture shaken and after complete solution filtered and added to the rest of the percolate as before.

This process is especially adapted for preparing syrup of wild cherry. The officinal directions are to use powdered sugar, which is superfluous. Moreover, the officinal process directs that the wild cherry bark in coarse powder should first be moistened with water, set aside 24 hours and *then* packed into a percolator, &c. This last operation is again a very weak feature of the officinal process. During no part of it is the opportunity so great for the escape of the cyanhydric acid as through this fallacious proceeding. The writer moistens the fine powder with water, and packs it into the percolator immediately; both appertures being well closed, the maceration is permitted 24 hours and the percolation begun. This process is executed as follows:

Take of Wild Cherry bark in No. 40 or 50 powder,.20 troy ounces.
Sugar, (crushed)..............................7 avoid. lbs.
Water sufficient.

Mix the wild cherry bark with one pint of water, and pack it firmly into a cylindrical glass percolator, forming a medium high column. Cover the percolator well and let stand at the average temperature for 24 hours. Then introduce one avoirdupois pound of the sugar, and pour on one pint of water. After the sugar has crumbled, add gradually more water until 4½ pints of percolate has passed. Now place the remaining sugar into another glass percolator, having first covered the perforated diaphragm with a single thickness of flannel or muslin, or a layer of cotton, close the lower opening and slowly pour 1½ pints of the percolate upon the sugar; when this has crumbled by aid

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of stirring allow the current to flow out and gradually add the infusion, until 4 pints of percolate has passed, remove this, and collect 2 pints or more if yet dense and clear in another receptacle.

The final percolate is caught in a third vessel, and when all has passed through, this portion is filtered, then added to the rest of the percolate and the whole thoroughly mixed.

BISMUTHOUS CITRATE.

BY R. ROTHER.

In the *London Pharmaceutical Journal* of Nov. 8, 1873, p. 361, appears an article by C. Méhu, on Liquor Bismuthi, translated from the French, in the *Annuaire Pharmaceutique*, 1873, p. 55. The main point of this document now under consideration, comprises the discussion of a *new* method for preparing a pure solution of ammonio-bismuthous citrate. The author advances the view that the Liquor Bismuthi prepared according to the method of C. H. Wood, (PHARMACIST, Nov. and Dec. 1871), contains an unnecessary admixture of normal ammonium citrate. And as he finds this to be an objectionable impurity, and a useless waste of citric acid, he concludes that *his new* process then and there published, wholly obliterates all the objectionable features concomittant to the host of these methods already extant.

Before entering upon the special merits of this particular case, the writer will attempt to define his attitude in a general bearing upon the diverse interests herein concerned. It is not the desire nor the inclination of the writer to render himself conspicuous, or force himself upon the attention of the profession at large, through the possible instigation of an unpleasant controversy with such eminent pharmaceutical chemists as M. Méhu and his learned confreres. But having been apprised of the extraordinary vigilance, and highly honorable endeavors of M. Méhu especially, to "render unto Cæsar what is Cæsar's," and which, by the way, is a most laudable and much needed undertaking in this the triple era of modest authors, unscrupulous compilers, and cautious critics, the writer would be pleased to know whether the paternal protection of M. Méhu extends only to the favored few, who are fortunate to be members of Société Pharmaceutique, residents of Paris or London, or the intimate personal friends of M. Méhu. It is true that the writer is apparently guilty of gross temerity, to draw upon himself the noted distinction of being the recipient, if of nothing more than the displeasure of such illustrious premiers of the profession. However the writer can boast of that honor already from the self same source, having been happily singled out for a similar donation of such vastly appreciated attention on a previous occasion, nevertheless the said circumstance was brought about without any external pressure exerted by the writer in that direction, with the obvious view of reaping anything in this line of desiderata. The happy event transpired whilst the writer was blissfully ignorant of the lavish outpouring of the "vials of wrath" upon his devoted head. This mitigating combination of circumstances does not however rule in the

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impending misdemeanor, and consequently the writer calculates that the coveted notoriety will be correspondingly greater.

The writer can lay claims neither to the age or experience of M. Méhu, and therefore cannot meet the question with the air of an equal or the prejudicial influences deriveable from a just cause in his behalf. The talented superiority and general information of M. Méhu and his retainers, on points particularly weighty in such matters, will naturally turn the favorable issue to their side, as the following incident will explain.

Dragendorff and his associates having thoroughly investigated the properties of cantharidin, published their extended researches for the benefit of all concerned, (1866). Several years later, (1870), Delpech and Guichard published their original process for preparing alkaline cantharidates, which consisted in precipitating these salts by means of alcohol. But the insolubility of the cantharidates in strong alcohol was ascertained years before this by Dragendorff and Masing, and therefore the original process of Delpech and Guichard was nothing new. In (PHARMACIST) August, 1872, the writer published some observations on the new process for cerate of cantharides, devised by Dragendorff, (PHARMACIST, April, 1872). One of the points upon which the writer particularly dwelt, was a modification consisting in the use of alcohol instead of water, for the preliminary treatment of the cantharides powder with potassium hydrate. This modification the writer still claims as entirely new and original with himself, and altogether independent of the use of alcohol for precipitating potassium cantharidate, or the preparation of a fluid extract of cantharides. The writer having a previous knowledge of the action of alcohol upon material liable to absorb water largely and swell in consequence, and thus becoming to a certain extent unmanageable, according to the deficiency of water used, applied alcohol on this occasion for the evident purpose which it had shown itself to be so eminently qualified to serve.

But the writer's term, alcoholic potash, was misunderstood, and generally accepted as comprehending a solution of potassium hydrate in strong alcohol. This was far from the writer's meaning. By alcoholic it was simply intended to convey the idea that the solution contained alcohol. It would have been proper, however, for the writer to have stated the proportion of alcohol that the mixture contained. However, it is clear, that strong alcohol would not, judging from its volatile nature at the elevated temperature, have been very economical or even exceedingly convenient.

It was found that a comparatively small proportion of alcohol added to the unyielding aqueous mass, rendered this sufficiently fluid for ready manipulation. Equal parts of alcohol and water is a good mixture, but considerably less alcohol will also suffice. In relation to the method of preparing cantharidin, the opinion was simply expressed that perhaps an alcoholic menstruum, (that is a liquid partly composed of alcohol), containing potassium hydrate, directly applied would yield good results.

In reference to the action of the potash solution, regarding the

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evolution of ammonia, it was the writer's opinion that part of the cantharidin was held as an ammonium salt, and that this suffered decomposition through the fixed alkali by which the ammonia was expelled. The assertion that ammonium cantharidate is probably insoluble in water, was derived from the statement in Storer's Dictionary of Solubilities, that cantharidin is insoluble in ammonia water. At this time the writer did not know that an amide of cantharidin existed, (the compound has recently been obtained). It may therefore be possible that a native amide of cantharidin exists, which being decomposed by the potash, yields potassium cantharidate and free ammonia. If otherwise, perhaps the ammonia is derived from some other salt of this base contained in the flies. But it is not very probable that the almost instant contact of the potash liquid should produce ammonia by decomposing nitrogenized matter not containing ammonia as such in combination.

Therefore, although the writer's modification of Dragendorft's method for "preparing" the cantharides, consisted in the application of alcohol based upon distinctly different principles, than the method of preparing potassium cantharidate, nevertheless M. Guichard publicly complained that the writer had appropriated his method without credit. It undoubtedly created agonizing sympathy, and a corresponding quantity of contempt for the other side, so much so that M. Méhu even looked the matter up, and at the next meeting of the society was necessitated to credit the special achievement so stoutly contested by Delpech and Guichard to Dragendorff and his associates, to whom it duly belonged.

The manner in which M. Méhu acquitted himself on this important occasion, had an air of "justice must be done and if the Heavens fall," but it was quietly passed over without any further comments. How Delpech and Guichard were exhonorated does not appear on the minutes.

In the PHARMACIST for September, 1872, the writer commented upon Mr. C. H. Wood's excellent method of preparing Liquor Bismuthi. At the time, the writer objected to the large excess of citric which Mr. Wood's formula prescribed, but presumably the method based upon the principle which Mr. Wood employs requires 2 equivalents of acid. Whether less will suffice the writer did not endeavor to ascertain. A modification of Mr. Wood's process was submitted, but this only touched the method of producing the anhydrous oxide.

The writer, however, gave his new process in three modifications, for preparing the bismuthous citrate in a compact, heavy and crystalline form. The numerous disadvantages usually encountered with the bulky form of the precipitated citrate were entirely removed, and the whole operation for generating a solution of pure ammonio-bismuthous citrate, of an absolutely definite strength, was reduced to remarkable simplicity. The first method given consisted in forming a solution of metallic bismuth in nitric acid, diluting the solution moderately, adding the equivalent of citric acid, and then ammonia until the gelatinous precipitate was re-dissolved and the solution reacted slightly alkaline; ⅓ to ½ an equivalent of citric acid was added now, and the solution

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set aside for about 24 hours. The liquid was then poured off the crystalline crusts, these several times rinsed with water, and then spread out in the open air to dry.

The second method consisted in adding to the normal bismuthous nitrate solution, the required equivalent of citric acid, then only partially neutralizing the free acid with ammonia, diluting the solution moderately with water and completing further as in the first method.

The third method consisted in diluting the nitric solution first, then adding the citric acid, and partially neutralizing with ammonia, as in the second method.

M. Méhu's process consists in forming a solution of metallic bismuth in nitric acid, crystallizing the normal nitrate successively from the acid liquid, re-dissolving the crystals in water, together with the citric acid, dividing the solution into two equal parts, neutralizing one-half with ammonia, and then adding the acid half of the solution. The precipitate is said to be purely white, easily washed, &c. Now this process differs so immaterially from that of the writer that a suspicious relationship becomes very striking. It has a strongly illegitimate cast. Moreover M. Méhu should not have overlooked the writer's method so completely. The plea of ignorance in regard to its existence would not hold good, because the supposed encroachment of the writer in the cantharides difficulty was immediately observed, and thoroughly ventilated, until it was generally understood that the originality did not originate in Paris, and it was unanimously decided to leave the irritating problem severely alone. The statement of M. Méhu that acetic acid does not decompose the ammonio-bismuthous citrate is evidently erroneous. The writer has been very partial towards acetic acid for the purpose of acidulating various elixirs, but it was found long since that acetic acid is incompatable with Liquor Bismuthi, or any preparation containing the ammonio-bismuthous citrate in solution.

It seems that although citric acid will always replace the acetic in its combinations with most bases, nevertheless, the affinity between the bismuthous citrate and ammonia is weaker than that of ammonia and acetic acid, therefore, acetic acid will abstract the ammonia from the double salt and precipitate the simple citrate. The writer expects M. Méhu to explain at his earliest convenience.

COMMERCIAL PEPSIN.

BY R. ROTHER.

Selldén's recent investigation on pepsin (Pharmacist, Dec. 1873) has confirmed the writer's results (Pharmacist, March and July, 1873) in almost every particular.

Selldén found that a single maceration (with too little water) does not exhaust the membrane completely, and that the addition of a saturated *solution* only of sodium chloride fails to precipitate *all* the pepsin from the macerate.

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He likewise ascertained that the precipitate produced by sodium chloride is not alone pepsin, but that a large proportion of it is composed of syntonin.

Finally, he concludes that the pepsin, first obtained as pure as possible, is best exhibited in glycerin.

Now Selldén is perfectly correct in his statement that one maceration does not suffice for the total elimination of the pepsin from the mucous membrane. But his conclusion was extremely faulty when he assumed that a partial digestion of the organ is necessary to extract the pepsin wholly.

The pepsin as contained in the peptic follicles is neutral. And in the living organism during the exercise of the gastric functions, it only becomes acid in the ducts of the glands at the moment of its extrication (Bruecke.) However, in the absence of vitality pepsin possesses the property of diffusing freely into a large volume of weakly acidulated water. Yet disorganized albuminous matter again strongly absorbs pepsin from the acid solution. (Von Wittich.)

But it is evident, that although the gelatigenous membranes when digested may yield syntonin and pepton, they nevertheless, while retaining their organized form, have but little affinity for *acidulated* pepsin. Hence it becomes apparent that pepsin extracted with a comparatively large volume of acidulous liquid at a low temperature must be nearly, if not wholly, free from syntonin.

It must not, however, be inferred from this that the pepsin thus obtained is pure. To the contrary, it is very fair to presume that the product is yet largely contaminated with an unknown substance which the sodium chloride simultaneously precipitates.

This peculiar and undetermined body may act as a diluent or carrier of the pepsin in the passage through the ducts. And it may be further assumed that the presence of this substance induces the characteristic gelatinous precipitate with tannin in a solution of the pepsin which was obtained by precipitation with sodium chloride.

The writer has found that the peptic follicles empty their pepsin but slowly, even under the most favorable conditions, so that the pepsin can only be completely gathered by successive macerations of the membranous material.

Selldén's erroneous impression regarding the limited extraction of the pepsin, resulted from the application of too little water in the maceration. While the writer employed one gallon of acidulated water for each membrane at every maceration, Selldén used only one pint. The scanty yield is readily explained from the failure to give the required scope to the diffusive capacity (greatly aided by agitation) of the pepsin, and therefore the narrow space permitted but little of the pepsin to escape from the confining envelope.

The proposed modification of the ordinary process of extraction, consisting in a *digestion* of the membraneous material at the normal temperature of the body, by which Selldén proposes to exhaust all of the pepsin, must necessarily yield a product containing large admixtures of syntonin, unless the digestion is continued until *all* the digestable material is perfectly converted into *pepton.*

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But the pepsin he obtained showed, by his own examination, that the digestion had only formed the preliminary product of digestive action, and had therefore only arrived at the most disadvantageous stage for the isolation of even a passable article.

Selldén also found it impracticable, and in fact impossible, to precipitate the pepsin by the addition of only a saturated *solution* of sodium chloride to the digested liquid, and consequently was compelled to add the dry salt until the whole liquid was saturated with it.

If Selldén had further elaborated his modification, the supposed improvement might have resulted in an actual advance upon his first endeavors. That is, since he apparently succeeded to increase the pepsin yield by dissolving the surrounding membrane, it should have been his immediate effort to purify his product from the contaminating syntonin by subjecting the first product to a second digestion, until the solution of it contained only pepsin and pepton. The addition of sodium chloride would now have precipitated pepsin at least free from syntonin and pepton.

In the writer's experience, the temperature of the mixture during the maceration of the membranes, should, by all means, be retained at a practicable minimum. At the ordinary summer temperature, which is even much lower than that required for the active propagation of peptic force, it was found useless to attempt the preparation of pepsin, since putrefaction of the membrane under such circumstances could not be prevented. It is utterly impossible to obtain a sufficiently odorless product from tainted material.

The product of the first maceration has invariably a grayish color, which seems to originate from the presence of a peculiar body not soluble a second time in dilute chlorhydric acid. Hence, in order to prepare from this an article equal in physical appearance to the yield of the subsequent macerations, it is necessary to redissolve the pepsin contained in this product, and reprecipitate it with sodium chloride.

It will be found advantageous to limit the time of the first maceration very considerably; then to pour off the liquid, and continue the maceration for the required period with a fresh portion of acidulated water. The first liquid should not be immediately precipitated, but can be employed once or twice more for the short preliminary digestions with fresh membranes, before subjecting it to the action of the salt.

The slight grayish tint of the first product, however, disappears, to a great extent, if this portion is mixed with the yield from the succeeding macerations.

The membranes to be macerated should be merely cut into moderately sized shreds, but never chopped or bruised. The macerating liquid should be a mixture of half an ounce of chlorhydric acid with one gallon of water; and this mixture should be applied in the proportion of one gallon for each membrane at every maceration.

The writer is now, however, experimenting with an entirely new process for the preparation of a purer pepsin, which promises to become of a more practicable and convenient nature than even the one so popular now.

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This new process consists in the precipitation of the pepsin from ordinary acidulated solutions by means of ferric hydrate. The action of ferric hydrate is remarkable; *combination* with pepsin seems to actually take place. And numerous advantages are promised by the peculiar properties of the new precipitate thus formed.

The artificial digestive fluid prepared by maceration as above directed, is treated directly with a comparatively small proportion of ferric hydrate, which for this purpose need not be thoroughly washed, but should not contain a very appreciable excess of free ammonia. However, the proper form of this new precipitant should be its most perfectly gelatinous state, secured by mixing very dilute solutions of ferric sulphate (prepared by oxidation with potassium chlorate) and ammonia. The ammonia should scarcely predominate, and the magma, or rather fluid holding the hydrate, should then be poured upon a muslin strainer, and allowed to drain. The residue may be immediately mixed with the peptic solution.

The effect of the ferric hydrate is momentary, and as far as limited observations could disclose, apparently complete at once. Instantly upon contact with the acidulous liquid the precipitate assumes a curdy character, and speedily subsides in voluminous curdy flakes. These can be easily collected upon a muslin strainer, perfectly and rapidly washed with water, and finally pressed compactly without sustaining any loss whatever. The precipitate is, after pressing, physically identical, excepting in color, with the pepsin precipitate produced by sodic chloride. Furthermore, it is absolutely free from odor, the residual liquid seems, in this case, to retain the odorous matter completely.

The clear liquid, strained from the precipitate, although having a decidedly acid reaction, contained a barely appreciable amount of iron in solution, showing thereby that the pepto ferric hydrate is probably insoluble in very dilute chlorhydric acid. A portion of this liquid was now treated with a weak solution of tannin (mixed with oxalic acid to destroy the iron reaction), which gave an abundant transparent gelatinous precipitate. The remaining liquid was then saturated with sodium chloride, and a small amount of yellowish white dense curdy scum immediately rose to the surface. This precipitate possessed the characters of syntonin. It is therefore probable that the syntonin, when present, in however small proportion, is not precipitated by the ferric hydrate; and it is also presumable that the *gelatinous* precipitate with tannin also indicates the presence of another body, which likewise remains unaffected by the ferric precipitant.

The gelatinous residue remaining after thoroughly pressing the well washed precipitate, produced by the addition of ferric hydrate, as above explained, was now treated with a strong solution of oxalic acid. This dissolved the ferric superstructure rapidly, leaving the pepsin skeleton magnificently in view. But after a few moments the gelatinous pepsin residue was also perfectly dissolved.

From this peculiar action it was thought that the precipitate was perhaps a ferric pepto-chloride. But the solution, after acidulation with nitric acid, gave no reaction with argentic nitrate. Hence chlorine

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was absolutely wanting, and therefore it is very supposable that the new body is composed only of pepsin, ferric oxide, and the elements of water, perhaps in definite proportions. Therefore the writer concludes that the pepto-chlorhydric acid of Schmidt and Meissner has no existence, unless the pepto-ferric compound results from a double decomposition between ferric hydrate and pepto-chlorhydric acid; producing thereby free chlorhydric acid in solution and ferric peptate which precipitates.

The concentrated oxalic solution was now poured into a filtered saturated solution of sodium chloride, which instantly produced a bulky transparent gelatinous precipitate upon the first addition of the pepsin solution, but after total mixture the pepsin again rapidly dissolved, to a great extent. The indissolved remainder was expeditiously secured on a filter, and on drying formed nearly colorless sheets. The greater part, however, remained in the acid saline solution, as was shown by the action of tannin resulting in the formation of copious gelatinous precipitates.

Alcohol was found to be equally ineffective as a precipitant, and it therefore devolves to find a suitable method for separating the pepsin from the iron in an available form. However the writer believes that an elegant liquid pepsin could be produced by treating this ferric peptate with very weak ammonia or fixed alkaline carbonate, filtering and properly acidulating the filtrate with chlorhydric acid.

Nevertheless it may be proper to leave the compound as it is, and should this form be found active it may be the most desirable shape and condition in which to exhibit pepsin, since the iron can act therapeutically in no way antagonistic, but to the contrary, highly beneficial.

The writer believes that with the use of ferric hydrate, a purer pepsin is obtained than by any other method, that is, when contrasted with other pepsin in relation to freedom from albuminoid contaminations. In view of the fact that the pepsin which gives no proteic response to Millon's test, still produces copious precipitates with tannin, the writer concludes that pure pepsin *is* precipitable by tannin, and that Bruecke's statement to the contrary is incorrect.

The writer considers that the comparative power of any pepsin should be indicated, not by the amount of coagulated albumin it will *completely* dissolve in a given time, but by that amount which it can dissolve *out* of a moderately large excess of albumin in a specified time, arbitrarily chosen. The excess of albumin to be employed in the assay should equal at least one-half of the whole amount dissolved. The calculation should in all instances be based upon dried albumin.

The writer has often heard of wonderful effects produced by pepsin, and some marvelous results were obtained with liquid rennet, which, from the nature of the mode by which it was prepared, contained no pepsin whatever, but a goodly proportion of alcohol, chlorhydric acid, and sodium chloride. Powerful effects were also obtained from mixtures of saccharated pepsin, containing a large proportion of monosodic carbonate, bismuth salts, &c., and generally it is found among the average practitioners that utterly worthless pepsin (unbe-

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known to them) gives desired satisfaction. Therefore, supported by this further accumulation of evidence, the writer reiterates his former statement, that artificial pepsin is therapeutically inert.

ARE PEPSIN AND PANCREATINE INCOMPATIBLE WHEN COMBINED?

BY GEORGE LEIS.

As cases not unfrequently occur where the combination of these two digestive agents would seem to be exceedingly desirable, this question becomes one of importance to the practitioner.

The statement has been made in some medical journal that this combination is incompatible, a statement which seemed very unphilosophical, for, is it not unreasonable to suppose, that the secretions of two contiguous organs, destined to be speedily mixed in the bowels, and supplement each other in the process of digestion, should be incompatible either chemically or physiologically. It is true that the natural reaction of the gastric juice is acid, and that pepsin artificially prepared is almost inert unless free acid is present, also that the natural reaction of pancreatic fluid is alkaline, hence, it might be *inferred* that they would neutralize each other, and one or both be rendered inert, but, as will be seen further on, the pancreatine retains its virtues apparently unimpaired when rendered distinctly acid.

The truth of this asserted incompatibility I determined to test for myself, and proceeded as follows:—The mucus membrane of a hog's stomach was finely chopped, macerated in a fluid composed of glycerin 1 part, water 2 parts by measure, for 36 hours, then strained, and the maceration continued with a small quantity of fresh fluid for 3 hours, which was strained off and added to the first portion.

Subsequently this solution was clarified by further filtration.

To test the digestive power of this solution 1 drachm was added to 1 oz. of distilled water, with 6 drops of hydrochloric acid and 100 grs. of coagulated white of egg, the mixture introduced into a bottle, placed in a water-bath, and kept at a temperature of 100° F. for 4 hours. The number of grains of coagulated albumen dissolved having been determined by weight, the pepsin solution was diluted till 1 drachm should have the proper strength to dissolve 60 grs. of coagulated albumen, then tested and found correct.

To obtain pancreatine melts were chopped, macerated in cold water for 12 hours, the solution filtered, the maceration repeated with fresh water for 5 hours, the solution filtered and added to the first portion. Solution of acetate of lead was then added as long as a precipitate was thrown down, and the precipitate, after settling, washed with water by decantation two or three times.

The washed precipitate with the addition of a little water and glycerin, as used for the pepsin, was treated with a current of sulphuretted hydrogen to remove the lead, the mass filtered, and the filtrate heated for 2 hours to about 100° F. to remove the sulphuretted hydrogen. The reaction of this solution thus prepared was slightly alkaline.

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This solution was tested with olive oil, and brought to such strength with water and glycerin, that 1 drachm would make a perfect emulsion when shaken with 3 drachms of olive oil.

The solutions of pepsin and pancreatine being thus prepared of definite strength, equal quantities of each were mixed and allowed to stand over night. If these agents are not incompatible 2 drachms of the mixture ought to dissolve 60 grs. of coagulated white of egg, and the same amount would emulsify 3 drachms of olive oil.

On the following day 2 drachms of the mixture were added to 1 oz. of water in a bottle with 6 drops of hydrochloric acid, and 60 grs. of coagulated white of egg, and kept at 100° F. in a water-bath. After 4½ hours' solution was complete, showing that the pepsin was unaffected by the mixture.

Two drachms of the mixture shaken with 3 drachms of olive oil, gave as perfect an emulsion as when the simple solution of pancreatine was used, thus showing that the pancreatine was, also, unaffected by the mixture.

The action of the pancreatic solution on starch was not tried, as its power to emulsify oils and fats is probably the only property of which a practical application will be made.

The action of a solution of pancreatine made subsequently upon olive oil was tried before the sulphuretted hydrogen was driven off, while the reaction was quite strongly acid. As perfect an emulsion as in the former case resulted, but, after standing a few hours there was a tendency to partial separation.

Thus it will be seen that pancreatine retains its emulsifying power under an acid as well as alkaline state.

From the result of this experiment we are led to believe that the statement of the incompatibility of the mixture mentioned was made merely upon the supposition that the alkaline condition of the pancreatine would neutralize the free acid necessary for the action of the pepsin, and render it inert. If it was based on the results of experiment, the preparations used probably contained impurities that gave an erroneous result.

In the light of the experience that I have had with these substances, I can see no objection to their combination, if it is not made very strongly acid.

Lawrence, Kansas.

CHICORY AGAIN.

To the Editor of The Pharmacist:

Dear Sir: My attention has recently been called to the abundance in our markets of an article known to the trade as *American Dandelion*, which is extensively used by manufacturers of fluid and solid extracts, in preparing these preparations of Dandelion, and on which preparations they unblushingly put the officinal name *Traxacum Dens Leonis*. The article mentioned is simply pure chicory root. This article is also largely sold in pressed form for Dandelion Root. The

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reasons given for this substitution of one root for another in manufacturing, is that it yields fully twice as much solid extract as the true root, and consequently a denser fluid extract. Parties offering us this root, told us that they supplied it to nearly all of the prominent manfacturers of fluid and solid extracts, and that they used it for Dandelion. In proof of this assertion, not one of the manufacturers mentioned to us, offer an extract of Chicory on their lists.

Now we do not wish to enter into the merits of Chicory as a substitute for Dandelion. It may be better in every respect than the drug it counterfeits.

The substitution of it is nevertheless a fraud on the profession, it is not a new idea, for the adulteration of Dandelion is spoken of in nearly all works treating of the subject, but it is a custom of trade that has been allowed to grow to such an extent, that the writer firmly believes that four-fifths of the Dandelion used in this country of late years is Chicory. This custom has prevailed because no harm has been known by it, and because no great objection has been made to it. Here is a chance for some enthusiastic student to investigate and publish a test by which preparations of Chicory, labeled Dandelion, may be detected by simple means. For the benefit of persons having occasion to buy the root, I would suggest the following points to be observed in examining samples: Chicory, generally appears much finer looking in point of size and color, being in larger pieces and whiter—if broken up in pieces the size of a pea, they will be found irregular in size and shape, and white on all sides, while it sometimes occurs one and one-half inches in diameter, and about one-fourth to one-half inch thick, showing that it is a section of a large root.

The degree of bitterness and the taste are very similar in both Dandelion and Chicory. The most conclusive difference will be found in the rootlets. If a rootlet about one-fourth of an inch in diameter be broken at right angles, if of Chicory, the medullary rays will be noticed plainly, radiating from the pith, while if of Dandelion, the pith will be found surrounded with many very fine rings, so close together as to be almost invisible to the naked eye, and if the specimen be very dry, it will be noticed to have a pearly lustre, and have the appearance of a section of clam shell, and medullary rays are not noticeable. I hope this subject will receive the attention it demands. We are opposed to dishonest Pharmacy even if the consumer is benefitted by it, but as a rule the profit will always be found at the other end of the transaction. I am Sir, Very Respectfully,

Your Ob't Serv't,

Peoria, Ill., Dec. 1873. Chas. B. Allaire.

Proof of Presence of Water in Etherial Oils.—Volatile oils distilled by means of water from vegetable material, always contains, even when they are perfectly clear, a small quantity of water, to prove which *G. Leuchs* recommends to mix them with several times their volume of petroleum-ether; turbidness immediately ensues caused by the separation of minute drops of water.

Wittstein's Viertel Jahresschrift.

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LEECHES, AND HOW I MANAGE THEM.

BY A COUNTRY CHEMIST.

* * * * * * * * *

There are two kinds of leeches recognized by dealers—namely the green leech (*Sanguisuga officinalis*) and the speckled or brown leech (*S. medicinalis*). Our native species belongs to the latter. Sometimes it is difficult to detect any characteristic difference between the green and speckled leeches, and by many eminent naturalists they are supposed to be one species. The former is a native of the South of Europe, and is frequently called the "Hungary Leech," from its being extensively exported from that country. The American pharmacists use a very distinct species (*S. decora*). Our official leeches may be distinguished by one having a spotted yellow belly, the other is not speckled, but of a greenish yellow.

Leeches are not now so much thought of as in the days of our forefathers. This probably is the reason why we find so little knowledge respecting their habits and employment amongst chemists. If they were more frequently called for by customers, so as to become a profitable branch of the trade, their use and habits would be more studied. The leech, as is well known, is employed only to subtract blood in some local part and in small quantities. The narrowest end or part contains the mouth, the broad and flat end is merely a sucker to hold on to the skin.

The mouth is a triangular aperture furnished with from seventy to ninety teeth, very minute certainly, but called teeth by naturalists. By means of these the skin is broken whilst a continual sawing-like motion is experienced when the creature is sucking up the blood. It is thought the mouth keeps open the wound whilst sucking, but this is only conjectural; probably it acts upon the same principle as a sponge. The physician when ordering his patient to apply leeches, should mark out the exact spot where they are to be placed with pen and ink, for sometimes ignorant persons, especially when applying them to the abdomen, allow them to wander about and suck anywhere, but if the place is marked out they would be more careful. The proverbial impossibility of making a horse drink against its will applies equally to leeches. It is at times difficult to persuade them to bite; even when they are induced it is, perhaps, only for a few seconds, and they wander away again. This may arise from several causes. It may be the blood is so impure that directly it is tasted the leech refuses to suck any more; this, however, is seldom the case. If the skin is at all unclean it is useless to apply them. The chemists who sells the leeches should be careful to inform the applicant of this fact; it will save much annoyance. The part should first be well sponged with warm water, then rubbed with a little milk. Sometimes it is well just to gently prick the part with a fine needle, or to rub a small quantity of blood over the skin. I have also seen milk and sugar used with good effect. In cold weather, before applying leeches, they should be placed in warm water about 75° Fahr.—if a tablespoonful of beer is mixed with the water all the better—then for a few minutes

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allow them to crawl about over a rough cloth or towel; they will afterwards generally bite very freely.

If they are too lively a good plan is to confine them beneath a wineglass until they have fastened on the skin. Many chemists recommend their customers to purchase leech glasses (tubes); I have found these useful when they are applied in the mouth, but I prefer to work without the tube when applying them to any other part of the body; a wineglass, which is found in almost every house, is all that is required. Persons unused to them do not know the difference between the head and tail, therefore in using the tubes they are apt to apply the tail end to the skin.

I know it is not an uncommon fraud to sell leeches as virgin or new leeches which have been previously used. Dr. Christison's directions for discovering this deception should be known by everybody. He says "the gorging of leeches is a more common fraud than the substitution of spurious species. They are known by being less velvetty in their coat, less flat when pressed, and presenting a little tumour when squeezed betwixt the fingers from the head to the tail. Leeches which have been used are often sold for unused or virgin leeches. They are best known by putting them on a white cloth and dusting their forepart with finely powdered salt; in thirty-seconds a little blood will be emitted, but not a particle if the leech be quite fresh."

It is not a pleasant thought to fancy a leech is being applied to your skin, which has been sucking some patient in a fever ward of a London hospital.

Of course no reasonable person can deny that leeches, if healthy, can be used more than once; even Christison states he has used them three days in succession without imparing their activity by immersing them in a solution of sugar and water frequently changed. Directly after removing them from the skin they are commonly sprinkled with fine salt on a plate to cause them to disgorge the blood. To me this appears cruel, not only to watch the leech writhing in agony but to observe the skin wrinkled where the salt has touched. I just cover them with brown or raw sugar for a few minutes; afterwards it is well to pass them betwixt the finger and thumb holding it by the tail, then place them in water in which a very small quantity of sugar has been dissolved, and change often for the first week. Working men and others, to whom the expense of leeches is a consideration, should be instructed as above by the chemist when giving him the leeches; they may possibly be required again by his medical attendant, if so it will save him much expense. A good mode of testing the healthiness of leeches is to hold them for a minute or so in the palm of the hand. The best and healthiest specimens will immediately contract into a roundish ball-like form; these seldom fail to give satisfaction.

Frequently it is desirable to draw more blood after removing the leech. To do so, hot flannels or linen rags heated and held on the part answer admirably. I have invariably found this the most satisfactory method, far more so than applying hot bran or bread poultices,

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One thing should not be overlooked, the difficulty in stopping the flo\ of blood. This seems never to enter the minds of most individual: yet there are patients met with in every practitioner's experience i: whom it is exceedingly difficult to stop bleeding. If a case like thi should be suspected when applying the leech, place it if possible an convenient over a bone, where pressure from the finger will often sto] the bleeding. If this will not succeed, moistened matico leaves ar useful, or linen rags soaked in a strong solution of alum. When th patient is strong and not suffering from any debilitating illness, th loss of a little blood will not be felt, but in the case of a weak child or a person reduced by disease, it is often important to stay the flow o: blood immediately, or they might be so weakened by its loss as tc cause fatal results.

Now a word on keeping leeches. I have heard many of my drug friends complain sorely about the loss from this source. To preserve them without loss and in a healthy state we should strive as closely as possible to imitate nature. How can they be expected to live in a fancy glass jar, exposed in a window, beneath the heat of a summer's sun? When I first entered into business, I ordered from a London firm; a hundred speckled Hambro' leeches, which I placed in a large glass globe, but although they were apparently healthy when received, they soon sickened and died. I do not think I sold a single dozen out of the whole lot. I thought this sort of thing would never pay, so I procured a fancy jar, or aquarium, made on purpose, and advertised extensively. It was to be stocked with *Valisncria spiralis* and other water weeds, water snails, sand at the bottom, etc., but I was still far from successful. At last I became so disheartened that I gave up keeping leeches altogether. I had no sooner so resolved, then naturally the demand increased, and in deference to the wishes of a medical practitioner in the neighbourhood, I decided to give the leech trade one more trial. I purchased a large black earthenware jar, with a wide mouth, glazed inside, such as is used by frugal housewives as a pickle jar, only mine will hold nearly two gallons of water. I place at the bottom a layer an inch in thickness, of large pebbles and sand well washed, then I fill the jar about two-thirds with water, hard or spring water does not answer so well as rain water. I change the water on an average every fortnight, in the winter season once a month is sufficient, for then the leeches are torpid; I never allow the water to freeze, although it frequently reaches as low as 40° Fahr. The jar is kept in a cool place. I now seldom loose any of my leeches, if the consignment is healthy when received.

I believe the chief cause of failure is exposing them too freely to the light, which excites them. In their native habitat, they live for the greater part of their lives beneath the mud at the bottom of the lakes, where they live in a semi-torpid state; in a dark jar, or where the light is kept from them, they are also semi-torpid.—*Chemist and Druggist.*

Mr. C. R. C. Tichborne, Ph.D., F.C.S., has been appointed Professor of Chemistry in the Carmichael School of Medicine, Dublin.

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COSMOLIN AND PARAFFIN OINTMENT.

BY A. W. MILLER, M. D.

[Read at the Pharmaceutical Meeting of the Philadelphia College of Pharmacy.]

This preparation is by its manufacturers explained as being purified and concentrated petroleum. According to the most trustworthy information which we were able to obtain, it is made by distilling crude petroleum so as to remove successively the gasolin, benzin, burning oils and the lighter machine oils. The residuum is then subjected to still greater heat, and its vapor is brought into contact with a jet of superheated steam, for the purpose of expelling the last traces of light hydrocarbon. After this it is still further purified and deodorized by the action of hot animal charcoal. We are consequently forced to conclude that cosmolin is simply impure paraffin, or a mixture of paraffin with varying proportions of the heavy oils which are nearest allied to it. These oils are known to the trade as paraffin oil, neutral oil, lubricating oil, spindle oil, &c. Although the manufacturers claim cosmolin to be a simple body, this is refuted by their own statement, namely, that they furnish this one simple body in the form of cerate, which remains firm at 95°, as a jelly which is fluid at 85°, and also as a liquid which is still fluid at 32°.

Taking advantage of the fact that paraffin is only very sparingly soluble in alcohol, we dissolved cosmolin in ether and in benzine, from both of which solutions the paraffin was readily percipitated by the addition of alcohol. Cosmolin is turned dark brown, like caramel, by sulphuric acid, but this is no doubt due to its impurities. Nitric acid produces no reaction in the cold, but when heated turns it yellow and finally orange color. Muriatic acid and liquor potassæ have no effect upon it, either cold or hot. All of these tests point to the presence of paraffin.

As cosmolin appears to possess some merits, and is certainly gaining favor with physicians, it would be desirable to contrive a formula for its preparation.

With this object in view a number of experiments were instituted for the purpose of obtaining a combination having similar physical and chemical properties. The substances which seemed most suitable were pure puraffin, and the so-called neutral oil, of the best quality, which possesses less of the peculiar coal oil smell than any other kind examined. The gravity of this oil is 32° to 33°, and its boiling point is somewhere about 500°. Coal oil dealers claim that this oil is free from odor, though this statement is only relatively true. In order to deodorize it still more, it was percolated through hot animal charcoal.

One part of paraffin was melted and three parts of oil, prepared in the manner described, were added to it. This compound, a of which is presented herewith, has the same behavior towards reagents as cosmolin. Like this, it melts at about 95°, does not evaporate below 400°, and of course will not turn rancid. Its odor is rather stronger than cosmolin; the color is somewhat different, though this is most probably due to using pure paraffin, as some of the impure

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grades have the same peculiar amber color as cosmolin. Both preparations when burned emit the characteristic smell of coal oil, and give off a copious black smoke; ignited drops of both fall down with a peculiar hissing sound. The chief difference appears to be in the mode of preparation, as the manufacturers of cosmolin claim to use no chemicals, while it is well known that both paraffin and the heavy oils are purified by sulphuric acid and soda. Still, as the compound which may be appropriately called "paraffin ointment" was boiled in distilled water without making it either acid or alkaline, the much dreaded chemicals have evidently been completely removed.

Cosmolin is vended at the somewhat exorbitant price of $1 per ℔., while paraffin ointment can be sold at a very fair profit for one-fourth of that price.

The above formula for this substitute for cosmolin is not offered as the best that may be devised, but only for the purpose of directing inquiry to this subject. The varieties of heavy coal oils in the market are so numerous that it becomes a tedious task to examine them all. We were in fact promised a sample of a purified paraffin oil made in Boston, which was represented as being almost identical with cosmolin, but it has not yet arrived.

In conclusion we would state that cosmolin does not appear to be so entirely free from all irritating properties as is claimed to be. A case has been communicated to us by Dr. Louis G. Bauer, one of our members, in which he applied it for an aggravated and obstinate form of eczema, occuring on the upper lip. It was productive of a high degree of inflammation and considerable tumefaction, although citrine ointment and similar preparations has been previously employed without such results.—[*American Journal of Pharmacy.*

VEGETABLE GLUE INCREASING THE ADHESIVE PROPERTY OF GUM ARABIC, BY H. HAGER.

Concentrated solutions of gum arabic as a mucilage, possess the disagreeable property when spread upon printing or other paper not strongly sized, to penetrate them to transparency, and in spite of this not making them adhere to other paper. Paper cannot be attached to common pasteboard, nor wood to wood. Paper pasted with mucilage on metallic surfaces usually falls off soon. The use of gum as cement for glass, porcelain or earthen ware, &c., is entirely impossible.

All these disadvantages of mucilage are remedied, when an aqueous solution of sulphate of aluminium is added. For 250 grammes of the concentrated gum solution, (prepared with 2 parts of gum and 5 of water), two grammes of cryst. aluminium sulphate will suffice. This salt is dissolved in ten times its quantity of water, and mixed directly with the mucilage, which in this condition truly deserves the name of *vegetable glue.* Solution of alum serves the same purpose, but far less efficiently.—*Pharm. Centralh.*

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THE ROSE HARVEST IN ADRIANOPLE.

The following report on the Rose Harvest for 1873 in the vilayet of Adrianople has been received from Mr. Vice-Consul Dupuis :—

Although the rose harvest in this province does not take place at any precise period, still, it is generally expected to commence early in the month of April; but, owing to wet weather and a cloudy spring, this year harvesting operations did not begin till near the end of May. It is also to be remarked that a high temperature in April will cause the rose-buds to develop early, chilly weather retarding the blossoming of the flowers until milder and softer weather sets in.

In cloudy or wet seasons the rose plants blow gradually, and harvesting lasts about a month, when the gathering of the flowers is rendered easy, and operations of distillation are conducted with care and attention; whereas when the weather is dry, only half that time is occupied, and distillation is more rapidly proceeded with. The advantage of a damp season over a dry one consists in a greater yield of oil in the former, when about 8 to 9 okes or 22 to 24 lbs. of the blossoms are required to produce one miscal or 1½ drachm, whilst in the latter 14 to 16 okes or 38 to 44 lbs. of the flowers will barely suffice to produce the same quantity.

In low and sheltered localities the rose tree comes to perfection sooner than in high lands, owing to the greater power of the sun than in elevated positions, where harvesting is naturally more backward.

The harvest this year has, on the whole, been more remunerative to cultivators, and the crop, it is said, will yield in quantity some 500,000 miscals, or about 93,750 ounces of otto or attar of rose, and is valued at about £70,000; but as the weather throughout last spring was moist, distillation was profuse, consequently it is less strong than last year's produce. The best quality of otto varies in price from 17 to 18 piastres the miscal, or from 15*s.* 4*d.* to 16*s.* 10*d.* per ounce; whilst inferior qualities realize from 14 to 15 piastres the miscal, or 13*s.* 1*d.* to 14*s.* the ounce.

The mode adopted for testing the purity of the different qualities of these oils is to put the essence into flasks, which are afterwards immersed in water at a temperature of 63° to 68° F., when if the quality be good it will freeze; this oil is preferred to all others as being of the purest kind. These oils will also greatly differ in quality according to the nature of the soil. A stony, sandy ground, impregnated with oxide of iron, is said to favour the growth of the plant, and produces oil of the very best quality; while hard, unmixed land will only yield oil of an inferior kind, which will not freeze at 52° F.

Manufacturers also frequently adulterate these oils by an admixture of a substance likewise produced by them from certain kinds of grasses.

Otto of rose is mostly exported to Germany, and buyers and agents from that country annually resort to this province, and make extensive purchases for firms to the amount of upwards of 61,800 ounces, the remainder finding ready markets in the East and Constantinople.

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The principal localities where this valuable article is manufactured are in the districts of Kizanlik, Karlowo, Kalofer, Eski-Saara, Jeni-Saara, Tschirpan, and Philipopoli, on the southern slopes of the Balkan mountains, the first-named places being chiefly renowned for their extensive plantations of roses of the most esteemed varieties, viz., the damask rose, sempervirens, and musk rose.—*London Pharm. Journal.*

BOTANICAL ORIGIN OF THE BALSAMS OF TOLU AND PERU.*

BY PROFESSOR BAILLON.

The plant which yields the balsam of tolu, and which, during the present century, has been described under the name of *Myroxylon toluiferum*, was named by Linnæus, in his 'Materia Medica,' *Toluifera balsamum*, and that name should still be retained for it. The younger Linnæus thought that the balsam of Peru was the product of another leguminous plant of the same genus, which he had received from Mutis, and which he named *M. peruiferum*. This was an error, since the pretended balsam of Peru did not even come from South America, but from the *Costa del Balsamo*, or Balsam Coast, in San Salvador. The tree which produces the greater part of this San Salvador balsam is that which Klotzsch, multiplying beyond measure the species of the genus, designated under the name of *M. Pereiræ*, but which cannot be separated specifically from *Toluifera balsamum* (*M. toluiferum*). Here, as in the entire genus, characters taken from the form, size, and proportions of parts of the fruit,—especially of the wing at its base, which varies infinitely in size and direction in one and the same plant,—cannot be held sufficient for the separation of species. The elongated, or more or less punctiform pellucid spots of the leaflets, do not appear as though they ought to be considered to have specific value; hence the slight value of *M. punctatum*.

The different qualities and characters of the balsams seem to depend entirely upon the method of extraction. But all the forms of *T. balsamum* have one constant character in the smooth surface of the seeds, which arises from the fact that the cotyledons are not ruminated. On the contrary, in *M. peruiferum*, which should take the name of *Toluifera peruifera*, they are ruminated. This latter tree yields scarcely any useful products, or at least any sent as such to Europe. The balsamic substance is present, however, on the surface of the seed, as in *T. balsamum*, but in less quantity, and it is sunk into the crevices of the seminal envelope, instead of being deposited in a smooth layer. This is the sole difference between the two species of the genus *Toluifera*.—*London Pharm. Journal.*

* Note read before the Congress at Lyons (*Repertoire de Pharmacie* [N. S., i., 566], from the *Revue Scientifique*).

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ON THE YIELD OF EXTRACTS.

H. Werner has compiled according to his own and the researches of others, the following table. He aims to prove by this comparison, that, supposing a uniform and careful manner of preparation—the indigenous vegetables differ in their yield according to the soil, and that foreign drugs are not always found in commerce of standard quality. Concerning his labors he premises the following notes:

Extr. Aloes was prepared by boiling aloe lucida in small pieces till the liquid appeared quite homogenous, when after standing for 48 hours the resin had subsided very nicely, and the strained liquor was evaporated.

Extracta Aetherea are prepared in a displacement-apparatus, by pouring on ether three times, the last portion of which instead of being recovered by pressure, is displaced by water.

Only drugs of the best quality were used for extraction, by which perhaps some differences of the table may be explained; regarding Extr. Opii the author remarks expressly, that in spite of using the best dry Smyrna Opium, the quantity he obtained never amounted to 50 per cent. The large differences which exist in Extr. Jugland cort. sicc. and Extr. Rubiae tinctor. between the results of Hager and those of the author, are to the latter inexplicable.

	HAGER.	KOSTLA.*	WERNER.
Extr. Aloes	45,0	50,0	60,0
" " acid sulf. corr.	—	—	70,0
" Arnicae rad	30,0	—	20,0
" Aurant Cort	—	—	41,0
" Bellad. e. bb. rec	4,5	—	2,3
" Calabar. fabar	—	—	7,0
" Calendul. e. bb. rec	4,0	—	2,3
" Campech. ligni	10,5	7,0	11,0
" Cardui benedicti	22,5	34,0	22,0
" Cascarillae	16,5	8,5	14,0
" Catechu aquos	—	54,0**	28,0
" Centaurii	25,0	25,0	17,0
" Chelidonii e. hb. rec	5,0	—	3,0
" Chinae fusc. fr. par	12,0	15,0	15,0
" Chinae fusc. Ph. Germ	—	14,0	16,0
" Chinae reg. fr. par	—	8,5	17,0
" Cinae aether	20,0	—	20,0
" Coffeae	—	—	10,0
" Colchii sem. acid	—	25,0	25,0
" Colocynthid	18,0	32,0	24,0
" Colombo	11,0	10,0	11,0
" Croci	50,0	—	62,0
" Cubebar. aether	17,5	—	26,0
" Digital. e. hb. rec	5,5	—	4,5
" Dulcamarae	15,0	16,0	20,0
" Ferri pomati	—	4,5	6,5
" Filicis aether	10,0	—	6,5
" Frangulae cort	—	—	35,0
" Fumariae	20,0	—	24,0
" Gentianae	33,0	27,0	28,0
" Granat. cort. spir	20,0	—	24,0
" Gratiolae e. hb. rec	5,0	—	2,0
" Guajaci ligni	3,0	—	2,0

*Archiv der Pharmacie 148. 217.
**Probably alcoholic.

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	HAGER.	KOSTLA.	WERNER.
" Helenii Ph. Germ	——	31,0	33,0
" Humuli lupuli spir	20,0	——	20,0
" Hyoscyami e. hb. rec	3,5	1,5	2,8
" Ipeccacuanhae	——	——	5,2
" Jugland fol. sicc.	——	——	33,0
" Jugland cort. nuc	20,0	——	50,0
" Lactucae viros. e. hb. rec	4,0	——	2,3
" Mezerci spir	9,0	——	9,0
" Myrrhae	38,0	50,0	60,0
" Nicotianae e. hb. rec	——	——	4,5
" Opii	50,0	51,0	45,0
" Pimpinellae	16,0	20,0	27,5
" Polygalae	30,0	——	30,0
" Pulsatillae e. hb. rec	5,0	——	5,0
" Quassiae ligni	7,5	3,0	4,0
" Ratanhae	17,0	12,0	11,0
" Rubiae tinctor	18,0	——	50,0
" Sabinae	20,0	——	25,0
" Saponar	35,0	——	50,0
" Scillae Ph. Germ	37,0	——	40,0
" Secalis cornut. Bonj	15,0	14,0	20,0
" Strychni opir	7,0	10,0	6,5
" Senegae	33,0	23,0	25,0
" Sennae	28,0	——	35,0
" Taraxaci sicc	——	22,0	25,0
" Taraxaci e. hb. rec	——	5,0	5,0
" Trifoli	25,0	34,0	32,0
" Valerian. Ph. Germ	15,0	——	22,0

(Neues Jahrb. fuer Pharm., Sept. '73.)

MUSTARD.

BY THOMAS GREENISH, F. C. S.

Since the passing of the Act "for the Prevention of Adulteration of Food," no article has created more discussion or been more severely handled than mustard. The public press has teemed with letters on the subject of its adulteration, some from writers who evidently know little or nothing about it, and others from those who should know all about it. In some of them it is not difficult to detect the promptings of the manufacturer; as a consequence, a cloud of "commercial dust" has blinded many persons to the real question at issue. Does the admixture of flour with mustard fulfil any beneficial or necessary purpose, or must its presence be regarded as a substance to "increase weight or bulk, in fraud of her Majesty's subjects"—in fact, as an adulterant?

A glance at the early history of the mustard manufacture may not be out of place here. Mustard seed was used medicinally by the Greeks, and held by them in such estimation that the discovery of its medicinal value was attributed to Æsculapius. It would be difficult to determine satisfactorily when it was first used as a condiment in this country, but it seems probable that its employment dates from about the time of the Saxons. It does not appear generally to have been ground up, as it is at the present time, but was usually eaten whole, a practice that at least protected the consumer from adulteration. Gerarde

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says, "The seede of mustard, pounded with vinegar, is an excellent sauce, good to be eaten with any grosse meates, either fish or flesh, because it doth help digestion, warmeth the stomacke, and provoketh appetite." At the present time vinegar and spices enter into the composition of the French mustard, and contribute to its keeping qualities. Mustard is not a fancy condiment, it has a distinct hygienic value. A French writer* thus speaks of it:—

"Of all the condiments used at table for giving flavour to meat, for stimulating the appetite, and disguising the faults of cooks, mustard is without doubt that which occupies the first rank, not only from its antiquity, which dates back to the time of the Hebrews, but also from its beneficial qualities. According to medical authority this condiment, the dietetic use of which is so general, greatly assists the organs of digestion. It augments, by the slight irritation it causes, the strength and elasticity of the fibres, it excites in the stomach and intestines the digestive juices, and promotes the passage of the residues of food by accelerating the peristaltic movement.

"Mustard agrees, therefore, with indolent, lymphatic, and weak stomachs. It is wholesome to those whose stomach and intestines are torpid, and hence it is especially useful to aged persons."

Previous to the year 1720, mustard was prepared for use by pounding the seeds in a mortar, and roughly separating the integuments, but it is said to have occurred to a woman named Clements, of Durham, to grind the seed, and then dress the flour. The mustard so prepared was superior to any other, received royal patronage, and enjoyed an extensive sale; the process was kept a secret, and a fortune realized. Hence Durham mustard became celebrated, and the name was long retained by makers to indicate mustard of a superior quality. Thus far efforts were directed to the manufacture of a pure mustard; but all this has long since undergone a great change, and now looking over a manufacturer's list of qualities we see a great variety, from a mustard flavoured with flour to a flour flavoured with mustard.

Attempts have been made to justify the addition of flour to mustard on two grounds only worth consideration. The first is, that a pure mustard when made for table use is more liable to fermentation than one made with an admixture of flour. Theoretically, I should doubt this statement; at this cold season of the year any experiments to determine the point would not be conclusive, but my own experience is opposed to it, and I have frequently examined samples which had been mixed and kept in a mustard pot more than a week, without showing any sign of decomposition. If mustard for table use will keep good a week or more, I do not think there is much ground for complaint. Pure mustard becomes darker after being prepared for use, but the same remark would apply to the mixed article did not the turmeric present in it keep up the colour. I do not, therefore, consider the statement as regards the relative keeping qualities of a pure mustard and one having the addition of flour of much value.

The second ground of justification is, that the public taste prefers

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* *Journal des Travaux de l'Academie Nationale.*

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the mixture of flour and mustard to pure mustard, on the same principle, I presume, that a donkey prefers thistles when unable to get hay. I have long kept nothing but a pure mustard flour, and have used nothing but a pure mustard flour, but I am ignorant of any difficulty as regards its introduction or use. I would here refer to a letter bearing on this part of the subject, written by Mr. Frazer, and to which I would direct attention.* He states that his difficulty in introducing the genuine mustard was mainly due to its differing from the commercial mustard in colour; the public had been accustomed to a bright yellow, whereas a genuine flour of mustard is rather of an olive green colour. The demand is daily increasing for a pure flour of mustard, and manufacturers may rest assured that the time is not far distant when the public will have no other. I cannot conceive any special difficulty in its more general introduction and use, neither can I accept the apologies for the admixture of flour, and those other things which follow in its train. If flour possesses a value in itself, why add turmeric to make it resemble mustard? I have not yet heard an argument capable of being maintained in justification of this dilution of mustard by the addition of flour, and I must adhere to my former statement that a mixture of the flour of black mustard seed with a fair proportion, not more than 20 per cent. of that of the white seed, will make a mustard acceptable for table use; strong it must necessarily be, but that surely cannot be considered an objection.

It is curious to observe the different reasons given for the addition of flour to mustard: one says that a little flour gives a flavour to mustard; another that it adds to its keeping properties; and a third that mustard without flour is too pungent for use at the table. It is much to be desired that the advocates of these several theories would institute some experiments, and publish the exact quantity of flour necessary for each and all of these purposes.

It is a significant fact that in the International Exhibition just closed, a large and celebrated manufacturer of mustard had a model manufactory, showing every stage of the process, and nothing but the pure flour of the black and white mustard seed was manufactured, packed, recommended, and sold there. No allusion was ever made to such a "valuable" addition as flour, and no apology made for its absence.

The mixture of flour in different proportions with mustard enables the manufacturer to suit the article to the price of the retailer, but the ultimate purchaser is the sufferer; he pays for the mixed article more than the intrinsic value of the mustard and flour. Its sale to the public as mustard is not justifiable.

In a former paper I have shown that the flour of the black seed is the essential constituent of mustard, and to the production of its volatile oil the pungency is due; that white mustard yields the milder flour; and also the theory of its addition to the black in definite proportions. I have likewise alluded to the process for detecting by the microscope the presence of flour and turmeric in commercial samples;

**Pharm. Journal* [3], vol. iii., p. 783.

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but this is not all that a thorough examination of mustard, even when pure and free from flour, involves; care must be taken to determine the relative quantity of black and white, as the latter in too great a quantity is also a diluent, though not an adulterant.

In mustard the distinction should always be borne in mind between genuineness and quality. A genuine mustard may be made of any quality and to suit any price, dependent mainly on the relative proportions of white flour to the black. The large white seed costs less as seed and gives more flour than the black; and on reference to trade circulars it will be seen that genuine mustards range from 9*d.* to 1*s.* 6*d.* per ℔. In some cases the mustard sold at a low price as genuine is composed of the white flour alone.

I cannot avoid the conclusion that if the retailer, when asked for mustard, sells a compound of mustard and flour, without at the same time declaring it as such, he renders himself liable to the second part of the 2nd section of the Adulteration Act,—"and every person who shall sell as unadulterated any article of food which is adulterated, etc.,"—in selling an article adulterated or "debased by foreign mixture."—*London Pharm. Journal.*

COLORATION OF CAJEPUT OIL.

Histed has tested six different samples of this oil for copper, and found the same in every case, on evaporating several grammes in a small porcelain capsule, heating the residue to redness, treating the ashes with one drop of acidum nitricum, and examining the filtered aqueous solution in the usual manner. Three of the samples appeared in the London market in 1830, 1870 and 1871, and one was acquired by Laplace in 1839, on his voyage around the world. Rectification made the green oils colorless, some strips of copper reproduced the green color. *Wiggers*, also, during inspections extended through 40 years, has examined many hundreds of samples of green cajeput oil, and never found them free from copper. The presence of copper was explained by the circumstance that the oil was formerly transported in copper bottles, and since it is at present shipped in glass vessels, the coloration is evidently an artificial one. According to *Gladstone* the oil from the leaves of *Malalenca ericifolia* and *Melalenca linarifolia*, possesses the same properties as that from *Melalenca Leucadendron*, the source of the cajeput oil, the boiling point and spec. gr. of which also nearly coincides with the oil of Eucalypt. glob.—*Neues Jahrb. fuer Pharm.*

THE PREVENTION OF EXPLOSIONS IN THE USE OF APPARATUS FOR THE GENERATION OF HYDROGEN.—BY R. FRESENIUS.

The easily prevented, yet often occurring explosions by careless use of hydrogen generators, may be entirely avoided, when at the end of the apparatus, i. e. at the exit of the wash bottle, a small tube is intercalated, which contains small disks of wire netting pressed between cotton.—*Neues Jahrb. f. Pharm.*

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DISTINCTION OF ASIATIC RHUBARB FROM EUROPEAN, BY J. CAUVET.

As far as the experience of the author goes, all the rhubarb roots cultivated in Europe possess a structure identical with Rheum rhaponticum, but different from the Asiatic, which may be easily recognized. If the root is cut across in the middle with a sharp knife, the cut surface cleared from the loosely adhering particles, and moistened with a few drops of water, the following will be observed;

Indigenous Rhubarb.—The cut surface shows a ray-like appearance, produced by alternate white and red lines, which pass from the centre to the periphery; the white lines are a little broader than the red. A brown zone passes through these lines diametrically, in cylindrical pieces shortly before they reach the circumference, in flat ones quite close to it, in the former it being circular, in the latter more or less iuterrupted, but always distinctly visible.

Moscowitic Rhubarb.—In the cross section on a white ground yellow, sometimes anastomosing, long and short wavy lines are observed, often interrupted by systems of rays. These kinds of stars are either elongated or circular, and of different size, their rays are light yellow in the region of the centre, towards the outside brownish. The brown rays sometimes proceed from the yellow lines, and diverge from them according to their direction, at right angles or obliquely. As in R. rhaponticum the yellow lines run from the centre to the circumference, but this direction is commonly marked by their wave-like course and by ray-like systems interposed between them; in the roots which are not much peeled, it becomes quite distinct only towards the periphery, however the yellow lines appear then yet wavy.

Chinese Rhubarb.—The cross-section presents light-yellow rays, which pass from the middle in strongly curved lines towards the edge. These lines often appear anastomosed and form a certain kind of irregular stars, the outside of which is surrounded by a larger number of rays than the inside. This distribution is seen particularly in the cambial zone, and is produced by the multiplication of the rays of the woody layer, which may be seen by means of a lens. The intermediate space between the rays is sometimes occupied by stars, as in the Moscowitic rhubarb, only they are less numerous, less distinct, smaller and want the brown or black circle which characterizes the others.

Easy as it is to distinguish from each other the different kinds of rhubarb root by observing a cross-section, so difficult, even impossible does it become when they are presented in a powdered state.—*Neues Jahrb. fuer Pharm.*

REMEDY FOR THE RAPID CURE OF CATARRH.

Hamilton was cured in about ten hours of a very severe catarrh, by the following mixture: Acid carbol. gtt. 10, Tinct. Jodi, Chloroform āā 7.5 gramme Some drops were put into a test-tube, heated over a spirit-lamp, and when evaporation commenced held under the nose. After two minutes this procedure was repeated, which was followed by sneezing several times, when the troublesome symptoms soon disappeared.—*Neues Jahrb. fuer Pharm.*

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ON THE PURICIFATION OF MURIATIC ACID, BY ENGEL.

For this purpose hypophosphite of potassium is used with advantage, which is added to the acid in the quantity of from 0,4—0,5 per cent. The liquid is set aside so long, till the arsenic has completly subsided, when it is decanted and finally distilled.—*Neues Jahrb. fuer Pharm.*

Carbonate of Lithia of commerce often contains impurities according to *Schlagdenhauffen.* In one sample he found 5,5 per cent. of sugar of milk; 3,5 per cent. of sulphate of potassium; and 3,7 per cent. of chloride of sodium. The addition of sugar of milk is doubtless fraudulent.—*Ibid.*

EDITORIAL.

TO OUR READERS.

With this number we begin Vol. vii of the PHARMACIST. It is not necessary that we remind our readers and advertising patrons the effects of the commercial panic have been felt by all alike, and that in consequence all kinds of producing industry are for the moment suffering, yet it may be be well to remind our friends that this effect is more likely to permanently embrarass the literary productions of the country than it is trade or manufacturing enterprises. For this reason we now allude to it, as in the estimation of many true friends of progress no effort should be spared, to encourage whatever tends to educate or improve the race.

As THE PHARMACIST must depend for a support upon a limited number of people, who from professional occupation are directly interested in its aims, it is very necessary to have their entire co-operation.

We need now more than ever the subscription and patronage of each one who has it to give, in asking this of our friends we believe it is equally for their interest to give it, for there has been no issue of this journal which was not of real value to its readers in bringing before them the record of experience and experiment in the range of pharmacy. Therefore, while asking charity of no one in support of the journal, we do most earnestly ask of all their help in making THE PHARMACIST self-sustaining, which it cannot be unless those who are to be benefitted by it will share the labor with us. In the whole country we have but four Pharmaceutical journals published, while there is at least one hundred medicals, the circulation of the four should be doubled for the benefit of the profession, and the money so expended by each individual, will prove to be the most profitable investment made during the year. Let it be remembered that the one dollar and fifty cents paid for the annual subscription to this journal, represents the thought and experience of many teachers, brought to your own store monthly in a form to aid each one in his business efforts. In conclusion may we ask each reader to forward his own subscription and as many others as he can obtain, in return we promise our best endeavors to make THE PHARMACIST a useful and welcome visitor.

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TRANSACTIONS OF PHARMACAL COLLEGES AND SOCIETIES.

CHICAGO COLLEGE OF PHARMACY.

Trustee's meeting held Thursday afternoon, December 9th, 1873. Present: Whitfield, Ebert, Mill, Biroth, Sargent, Buck, Huyck, Jamison and Patterson.

Minutes of Trustee's meeting Apr. 23 and Dec. 2nd, read and approved.

Mr. Henry Biroth was unanimously elected a member of the Publishing Committee vice Mr. Thos. N. Jamieson.

Mr. Sargent, on behalf of the committee, read memorial, which was approved by vote of the Board.

Some discussion ensued regarding the stamp tax, after which the following resolution was adopted: Resolved, That this College desires to commend the action of the Philadelphia Drug Exchange, in their efforts to obtain relief from the operations of Schedule C, of the Internal Revenue Law, and further offer their hearty co-operation in any measures they may deem necessary to secure either a repeal or modification of the law.

Resolved, That the Secretary notify the members of Congress from this district of the above, urging their assistance to further whatever action the Philadelphia Drug Exchange may deem necessary.

Motion to adjourn. Adjourned.

T. H. PATTERSON, *Secretary.*

COLLEGE OF PHARMACY OF CITY OF NEW YORK.

At a stated meeting of the Board of Trustees of the College of Pharmacy, of the City of New York, held December 4th, 1873. After the transaction of the usual routine business, Dr. H. J. Menninger and Mr. Gustavus Balser were unanimously elected members. A Report of the Board of Pharmacy, acting as special committee on the expediency of instituting legal proceedings against certain Pharmacists, who have failed to comply with the existing drug law, was received, discussed and the draft of a memorial addressed to the District Attorney, requesting him to institute such proceedings read. After transacting further business of minor importance the Board adjourned.

H. A. CASSEBEER, JR., *Secretary.*

ALUMNI ASSOCIATION OF THE PHILADELPHIA COLLEGE OF PHARMACY.

To the Graduates of the Philadelphia College of Pharmacy:

GENTLEMEN:—At a Stated Meeting of the Executive Board of the Alumni Association, held in the College Hall, Nov. 13th, 1873, it was unanimously

Resolved, "That a Committee be appointed to procure an Album, to be placed in the College Library, to contain the Photographs of the present and future Graduates of the College."

The above resolution will, we doubt not, meet your hearty approv-

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al, and enlist your influence in aiding us to prosecute this work. We desire to make the collection as complete as possible, and, therefore, ask you to send us your card photograph, with your autograph written under the picture. The photographs will be arranged alphabetically in each class, and the classes in the order of their respective dates.

We earnestly invite your early attention to this, so that at our next and succeeding annual meeting, OUR ALUMNI ALBUM may be an interesting feature, containing the faces of old friends and fellow students. The satisfaction of thus bringing to remembrance the pleasant associations which the potraits recall, will, we think, more than repay you for the trouble occasioned. Any of the gentlemen named below, will be glad to receive your favor and place it in the Album.

EDWARD C. JONES, S. E. cor. 15th and Market St.,
RICHARD V. MATTISON, No. 1323 Arch St.,
WALLACE PROCTER, No. 500 S. Ninth St.,
Comm. on Alumni Album, Phila. College Pharmacy.

REVIEWS AND BOOK NOTICES.

Insanity in its Relation to Crime, a text and a commentary, by WILLIAM A. HAMMOND, M. D., Professor of Diseases of the Mind and Nervous System, and of Chemical Medicine in the Bellevue Hospital Medical College, &c., &c. 78 pages. New York: D. Appleton & Co., 1873. For sale by Jansen, McClurg & Co., Chicago.

The Cerebral Convolutions of Man, represented according to original observations, especially upon their development in the Fœtus. Intended for the use of physicians. By ALEXANDER ECKER, Professor of Anatomy and Comparative Anatomy in the University of Friburg, Germany. Translated by ROBERT T. EDES, M. D. New York: D. Appleton & Co., 1873. For sale by Jansen, McClurg & Co., Chicago.

These are interesting little volumes, that will amply repay a careful perusal by all intelligent readers. The authors as well as the publishers have performed their work well.

How Flowers are Fertilized; a lecture by Alfred W. Bennett, Esq., M. A. F. L. S., lecturer on Botany, at St. Thomas's Hospital. Delivered November 5th, 1873. Manchester, England.

Parasites, and their strange uses; a lecture by T. Spencer Cobbold, Esq., M. D., F. R. S. Delivered November 12th, 1873. Manchester, England.

The Toner Lectures, instituted to encourage the discovery of new truths for the advancement of medicine. *Lecture I*, on the Structure of Cancerous Tumors, and the Mode in which Adjacent Parts are invaded. By J. J. Woodward, Assistant Surgeon, U.S.A. Delivered March 28th, 1873. Washington, D. C.

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THE PHARMACIST.

VOL. VII. CHICAGO, FEBRUARY, 1874. No. 2.

DROPS.

HORATIO N. FRASER.

The importance of accuracy in the compounding and dispensing of medicine can only be measured by its service in the prevention and cure of disease, and since the time when its preparation and use were first regarded and studied as an art, much thought and labor have been expended on devices for making standards by which intelligent aids to the medical profession would be able to dispense and give the medicine with a uniformity tended to convince all parties concerned that the original idea and directions of the physician had been correctly understood and carried out.

The results of these efforts in a practical form have been made apparent by the almost universal use of the pharmacopœias in the different countries where they are published, by the profession for which they are made; the benefit derived from their use making it thought necessary in some countries to enforce it by law, the absence or non-enforcement of which law creates so much confusion at times in ours.

Notwithstanding these standards have been made and endorsed by the highest authority, approximate measures are very often used by physicians in their prescriptions, sometimes with a want of knowledge which in an apothecary would be called culpable, but more often to a thoughtlessness which oftentimes entails serious consequences. And the use of the word drops is not the best of these.

A drop as defined by Webster is "the quantity of fluid which falls in one small spherical mass," or the smallest bulk of liquid which can be conveniently measured. More definitely it means that portion of a liquid which separates from the bulk of the liquid, when its weight overcomes the attraction of its particles to it, and will vary with the fluidity of the liquid, its weight, the amount of solid matter held in solution by it, the temperature at which it is dropped, and the size and shape of the vessel used.

The idea generally meant to be conveyed by the term drop, is the bulk of a minim. But from the annexed table it will be seen that it varies from about one third to nearly twice its measure, and is, consequently unreliable for preparing medicine. An instance occurred a short time ago, which came to the knowledge of the writer, where

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the difference between the size of the drop from the nose of a dispensing bottle and the end of the stopper, made such a difference in the appearance of a presçription that the druggist lost the trade, not only of the patient, but several more on that account.

This is an evil which a druggist cannot avert, for even under the same circumstances, the bulk of no two drops from the same bottle are exactly equal, and the remedy for the evil rests, not with the pharmacist, but with the physician whose duty it is, and whose interest it will soon be to protect him from it.

Below is added a table of the number of drops to a fluidrachm of officinal medicines that are usually given in the form of drops, together with some of the unofficinal which are more generally used, it was noticed that the drops from a two or four ounce prescription bottle, were in every case smaller than those from a quart or pint tincture, ranging from ten to twenty more to the fluidrachm:

FROM QUART TINCTURE BOTTLES.

Tinctura Kino	111
" Opiii	105
" Opii Camphorata	93
" Gelsemii	97
" Stramonii	95
" Ferri Chloridi	105
" Aconiti Radicis	120
" Digitalis	90
" Veratri Viridis	115
Vinum Opii	80
" Ergotæ	72
" Colchici Radicis	74
" Ipecacuanhæ	75
Oleura Olivæ	80
" Amygdalæ	80
" Terebinthinæ	90
Syrupus Pruni Virginianæ	60
" Simplicis	55
" Scillæ	56
" Acacin	50
" Ipecacuanhæ	60
Extractum Ergotæ Fluidum	96
" Veratii Viridis Fluidum	100
" Gelsemii Fluidum	97
" Conii Fluidum	92
Spiritus Chloroformi	120
" Ætheris Nitrosi	111
Liquor Potassæ	65
Alcohol	106
Chloroformum Purificatum	160
Glycerina	49
Aqua Ammoniæ	47

FROM PINT TINCTURE BOTTLES.

Acidum Carbolicum 95 per cent	70
Acidum Muriaticum	58
" Aceticum	76
" Aceticum Dilutum	60
" Nitricum	71
" Sulphuricum	115
" Sulphuricum Aromaticum	114
" Nitro-Muriaticum	61

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UNOFFICINAL PREPARATIONS FROM ORIGINAL BOTTLES.

Acidum Hydrocyanicum Dilutum from oz. bottle	48
Compound Syrup Phosphates (Parish's)	50
Syrup Pyrophosphate of Iron (Qt. Tr.)	57
McMunn's Elixir	86
Tincture Calabar Bean (Qt. Tr.)	112
Chlorodyne	90
Fleming's Tincture Aconite	117
Godfrey's Cordial	64

NOTES AND QUESTIONS,

BY M. C. BIDWELL.

The Pharmacopœia defines, "Suet" to be "The *prepared Suet* of Ovis Aries"—did anybody ever hear Mutton Tallow called Suet before? This is a small matter, but if any conscientious Pharmacist tries to follow the Pharmacopœia and use suet where "suet" is directed (as for example in making Tar Ointment) he will unite with the writer in wishing that the compilers of our National standard had translated their language into English, and not written Suet when they meant Tallow. Wherefore, brother Pharmacists, take your books, and wherever Suet is mentioned, put in Tallow instead.

And in this connection, the interleaved edition of the Pharmacopœia cannot be too strongly recommended. In this edition, opposite each page of printed matter is a blank page, rather closely ruled, of writing paper, for notes, memoranda, new or proposed formula, and any other item worth keeping. Such a book, with the notes and hints, that an intelligent Pharmacist will naturally pick up, will rapidly increase in value and interest, and will soon be worth far more than the small difference in the first cost.

In the formula for Yellow Oxide of Mercury (a valuable addition to the list of preparations) too little Liquor Potassa is directed. Instead of 17 troy ounces, it will take at least 25, and if it is at all deficient in strength, still more will be needed. Dr. Squibb has pointed out this error in a pamphlet published by him, but it may not have been generally noticed.

It would seem desirable that writers for Pharmaceutical journals should use less advanced or technical language than they sometimes employ. Phrases that are familiar to men of science are often unintelligible to the mass of readers, whose benefit should be mainly consulted. The new chemical nomenclature, for instance, is not understood by Pharmacists in general; indeed the writer, though more familiar with chemistry than the average of our profession (not very high claim, perhaps) is sometimes puzzled by the terms used; and standard works often fail to shed light upon the doubtful points. The learning and ability displayed by some of your own contributors suggests the wish that their articles should not be diminished in general usefulness by being partly unintelligible to most of your readers.

How is it that manufacturers can sell Precipitated Phosphate of Lime for 35 cents per lb., when it costs about $1.25 to make it

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according to the Pharmacopœia? Is it an incidental product in any other operation, or is the "commercial" article a different thing from the officinal? ELMIRA, N. Y.

ON LAWS AND REGULATIONS DESIGNED TO ELEVATE THE DRUG-BUSINESS,

BY CHAS. C. FREDIGKE.

Through the pharmaceutial press of our country, articles have been published from time to time, having the above subject for a theme. In reading them, we cannot fail to see that they emanated from the brains of presidents of boards of health or commissioners of public safety rather than the quills of druggists. Advice is freely given for accurately discharging duties and responsibilities self-imposed and labors are assumed voluntarily and gratis, for the minute execution of which, the officers of any board of health &c., would be thought by the public to be entitled to any adequate recompense. They seem to be dictated by the idea, that the public is in constant danger of life and limb at the hands of the druggist, as if it had no means of protection; indeed it is time that we look out for our own safety and rights and shield ourselves against the aggressive tendency of this quasi unprotected people. Our agitation and talk about more laws to regulate the drug-trade and secure the infallibility of the druggist have been thus far productive of no good, on the contrary, they have done positive harm, by engendering a vague feeling of insecurity and danger, finding expression now and then through juries when a luckless wight of our ilk is brought before the bar, where he can experience the labors of his colleagues in being made an example of by the representatives of the people.

After due care has been exercised, in dispensing an article this endangered people has the right to make us answer and defend ourselves against any consequence it may have had, as soon as they can make their claim "stick". This unprotected people is noted for thrift, enterprise and independence, which make themselves felt by the right which our fellow-citizens claim to possess, that they can buy for their money whatever they please. When they are sick, their enterprise tempts to go to a druggist, buy something and become informed by him as to its therapeutical effects, uses, doses etc. There is no objection to the druggist's study of therapeutics and posology, in fact it is necessary that he should learn it, he should know the antidotes by heart for most poisons, but he studies these branches with reference to his own business, and not with reference to pathology, which certainly is none of his concern. However this knowledge, such as it is, is imparted by the druggist in nine cases out of ten without for a moment considering his incompetency in the premises or the responsibility he assumes. He gives it freely out of mere mercenary ends in order to oblige? his patron and not to be outdone by his neighbor next door, and if not for these reasons, then his selfconceit is flattered by an appeal to his knowledge for such advice, and given for the purpose of

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gaining a reputation!? It is accepted by the unprotected citizen, who is very much obliged and pleased to have "made" thus the fee of a physician. No doubt he possesses the inalienable? right to treat himself in whatever way he pleases, even medically if he wishes, yet he is conscious of some uncertainty in the matter, hence his question for advice to the druggist, which from a professional point is worth absolutely and positively nothing. If he goes into the trap. it will be sprung on him as suddenly, as his worthless advice caused unexpected dangerous consequences, for then the duty devolves on our unprotected citizen to exercise his enterprise and recover a momentary plaster for his pains. That the druggists advice is worthless, he does not at all consider, he thinks that a man who constantly deals in drugs, should certainly know what they are used for; to him druggist and physician are terms synonymous. and if fatal consequences result it makes not much difference to his enterprise, who furnishes a peg to hang his cloak on, whether it be a druggist or a doctor. This condition of things, this prostitution of pharmaceutial knowledge has come to such a pass, that the people expect advice from the druggist as a matter of right, for per contra, if he fails to impart it and fatal consequences result, he will furnish that peg nevertheless, so long as the thrifty citizen can make it "stick" and stick he can make it, advice or no advice! on the simple claim of carlessness! True, the enterprising fellow-citizen will have an uphill job to sustain his inalienable right, yet the druggist will enjoy the enviable pleasure of defending himself, study medical jurisprudence and ruminate on the mutability of things.

In view of this stupid fact it may be asked what has this agitation for more laws accomplished? The idea has found expression and has been supported by any amount of discussion and reasons, that we want a law by all means to regulate the sale of "poison" in order to insure the people against accidents, that we want a law to compel registration and examination as to competency (as in New York for instance) in order to elevate the standard of the profession, the prime reason for which also is the safety of the people. It would be interesting to know whether this measure has had the effect to diminish to an appreciable extent this general misapplication of pharmaceutical knowledge? It may be safely asserted, that the examined and registered druggist of New York is the same dealer in drugs at present, pure and simple, as heretofore, and as for the standard, that has been elevated to the extent of—30 or 40 dollars! We search in vain for an attempt to protect ourselves against the claims and exactions of the people and when asking for information we are told, that these laws are especially designed secure that end, but it is not clear where that comes in.

Then again it has been strenuously advocated to insure the people's protection against accidents and the druggists infallibility by different mechanical means, voluntarily adopting rules and regulations enforced by foreign nations, such as placing the "poisons in special cases, each bottle fitting into a special place and no other, all under lock and key, the latter to be hung up high; others appeal to our feelings and recommend the keeping of poisons in bottles having the shape of a porcupine; some think a witness to be an infallible means of protection, they

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want the approach to the "poisoncase," the weighing and measuring of the poison, its incorporation into a mixture prescribed, in short the whole poisonous transaction recorded, signed, sealed, delivered and witnessed into a "poison-book;"many ensure the people by means of the label, adopting striking devices, colors, coffins, skeletons, obsequiously specifying the dose for children, youths and adults and in case of accidents! giving the names of the antidotes for the "poisons"! Some "dispense poison" only on the prescription of a physician, others "sell poison" only to those they know, and a few sell no poison whatsoever! Some even presume that we are endowed with divine attributes by means of which we can forestall the probable events of the future, advicing us in their immaculate simplicity, elevating and sublime to contemplate, to dispense or sell another article instead of the poison asked for, in order to prevent a probable suicide! (Am. Journ. Pharm. vol. 46, p. 11.) Placing our limited acquirements beside this lofty scale, it must be sincerely regretted however, that so few of us possess clairvoyant powers.

It may be mentioned here that if we insist on this misapplication of pharmaceutical knowledge there is a tax due to the government of the United States amounting to one cent for every 25 of value according to an act of the internal revenue law passed July the 13th 1866; omiting the affixion of such stamp, mades liable to a fine of ten dollars for each and every cent. If directions for use etc. are attached to vessels containing laudanum, citrate of magnesia, seidlitz powders, castor oil etc., they become patent medicines and the vendor thereof a quack according to the 13th section of the act just mentioned; for to a delegation recently sent to the commissioner in Washington he explained that "where physic and physician are supplied to a patient at one and the same time, as was the case where labels were used giving the name, dose and direction of the medicine, it was plain that a stamp was required." That this final opinion of the commissioner (there is no appeal from it) "advances the interest of the physician,', or "disregards what the people have long considered their rights," concerns him not, but his official decision makes it clear that posology practically applied is a privilege for which the druggist owes a tax to the government. That such a trifling inconvenience as the compliance of the druggist with the plain requirements of the United States revenue law should cause so much feeling and controversy, cannot be explained easily, it is mentioned here only because the 13th section brings it under the head of those laws which are designed to elevate the drug-business. Want of space admits not of its further consideration, and the reader is referred to the Am. Journ. Pharm. Vol. 45, page 565 et seq.

The writer has adopted all these rules in a lump for good, because if one fails to protect, the other will, together with the regulations of all the other laws laying about loose, such for instance as the one which was designed to prevent abortion, etc. It will be necessary to look at this latter law a little more closely in order to get an inkling of the good times coming. It runs in this wise:

Section 1.—Be it enacted by the People of the State of Illinois represented in the general assembly, that no druggist, dealer in mede-

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cines, or any other person in this State, shall sell to any person or persons any drug or medicine known or presumed to be ecbolic or abortifacient, except upon the written prescription of some well known and respectable practicing physician. And any druggist or dealer in medicine filling such prescription shall, in a book especially provided for that purpose, correctly register the name of the medicine and the amount, together with the date of the sale.

SECTION 2.—No druggist, dealer in medicine or any other person, shall keep on hand or in any manner advertise or expose for sale, or sell, any pills, powders, drugs or combination of drugs designed expressly for the use of females, in any other manner or form than that hereinafter described, to wit: The proprietor of any such pill, powder, drug, or combination of drugs, shall submit under oath, a true statement of the formula by which the same is compounded, to five well known and respectable practicing physicians in the county where the same is proposed to be sold; if the said physicians unanimously agree that the proposed formula is not of an abortifacient character, they shall issue their certificate, under oath, to that effect, a copy of which shall be kept, with the formula attached, for the inspection of any person desiring to see the same, by the druggist or dealer in medicine proposing or desiring to keep for sale such medicine—and this shall be his full warrant for such sale: Provided, that this section shall not be taken or construed to apply to such compouuds as are know' as "Officinal."

SECTION 3.—Any person or persons violating any of the provisions of this act, shall, upon conviction thereof, be punished by a fine of not less than fifty nor more than five hundred dollars, or by imprisonment in the county jail not less than thirty days or more than six months, for each and every offense, or by both.

This law took effect July 1. 1872.

SECTION 1. prohibits the sale of any medicine known or presumed to be abortifacient, without stating what medicines are known and what presumed? to produce abortion. Then we are charged with the office of a private detective, and it becomes our duty to inquire about the "respectability" of physicians. The office of bookkeeper or registrar is thrown in by this section as a gratuitous gift yet when we want a scholarship in a commercial college in order to learn "double entry" etc., we require time and money. The number of "books especially provided for that purpose" throughout the State of Illinois, can be counted on ones fingers,

In reference to section 2. it need only be stated, that "any person" can buy throughout the State of Illinois any amount of "pills, powders, drugs or combination of drugs designed expressly for the use of females," without being able to find a certified copy of a formula for any one of them on file in any county. Even if any person could, that person would have to show his commission as inspector, and if we then condescend to allow him to inspect it, it may be asked, what does he know about the effects of the the combination?

In section 3. all the penalties are duly set forth and this without stating the amount we are entitled to as detectives or registars. By

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what law can we be compelled to become such? Where are the officers to enforce it? Does it prevent or even diminish abortion? The public press; gives answer to the last question almost every day. It is nothing but a contemptible bit of legislative tinkering, (however praiseworthy its intention) foisted upon the trade in this state, hatched and manœvored through the legal grist-mill at its annual turn of 1871 had at the city of Springfield, County of Sangamon, in this State, by a naturalized citizens, hailing from some part of Great-Britain. Indeed it seems that it would be more appropriate in that county, where laws such as the one called the "adulteration act" come in vogue, and where it has become possible under this act, that a druggist is brought before the bar, in order to defend himself against the smell of spirits of nitre or the spirit of the smell of ether nitrous sweet! (London Chemist and Druggist, Vol. 14. p. 429 et seq.)

After having carried out all these laws, rules and regulation for years, the writer appeared to himself in a character very much like that of a fool, for it really became a question, whether he could or should sell anything at all! His independent and enterprising fellow-citizen would tell him with more acumen than eloquence that "I do not care to be examined, when I buy any thing," saying it and leaving him to cogitate about his honorable position. If any one doubs it, let him try for a week the registration of the sales of "poisons" ask the name, residence, for what purpose etc., and note the answers received in the column set aside for remarks and if then his experience is not a good deal more than this, he may congratulate himself. In this material age and concrete and practical country of ours, where competition is sharper and more unscrupulous than in any other, he who tries to carry out these measures will stand but a very slim chance to maintain his ground in the daily fight for existence. The commissioner's answer to that delegation describes the universal prostitution of pharmaceutical knowledge in as terse a manner as it is possible to explain such a wide-spread evil, and if any one needs suppression it is this "when physic and physician are supplied at one and the same time." It seems almost as if the examination-and registration-process through which our colleagues down East have passed, clouded their vision, for it cannot be maintained that the commissioner's decision favors the physicians or disregards the rights which the people presume to possess. It will not do at all to handle this subject with gloves, for that has already cost us more than ten years of time and a goodly amount of money. All the laws on registration, on examination, on the sale of poison etc., have not been able thus far and never will raise this universal pedling of drugs known in the concrete as the drug-business to the rank of a profession. The examined and registered druggist in short the graduate who pedles drugs is more contemptible than the common drug-monger, who lays no claim to therapeutical knowledge. A graduate in pharmacy with all his knowledge of chemistry, botany, pharcognosy, toxicology, in short all the disciplines comprised by the term of pharmacy is professionally utterly incompetent to advice the administration of even a teaspoonful of castor-oil, his advice is nothing, for he is a stranger to all branches of knowledge requisite in the

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premises, he knows almost next to nothing about anotomy and physiology, and absolutely nothing about diagnosis, prognosis and posology, in short the science and art of medicine. If then he conforms to his profession, upholding its principles and executing all the laws, rules and regulations enacted and recommeded, he will find his existence put in question, for the great majority of drug-mongers will outstrip him in a commercial sense, for they don't even pretend to uphold such principles, thus leaving him to munch his honorable occupation. The natural result is that he will become one of their number, if not in princidle, then in practice, and practice is everything, in spite of all the principles.

The people possess no right to treat themselves medically, any more than they have a right to commit suicide; they claim the right however to buy drugs, and it is in the power of the state to circumscribe or regulate this claim to an extent commensurate with the interest, which the state possesses in the welfare of the citizen, because the promiscuous sale of drugs is attended with dangers to the latter. If then we wish to elevate the drug-business to the dignity of a profession in so far as this can be secured by laws, it will be necessary first of all to abate this nuisance and exert our combined power and prestige towards the passage of a law prohibiting the sale of drugs entirely, with certain provisions in regard to those which are used in the arts. This law can be strictly carried out in all large cities, for the country however it will be necessary to allow certain well defined exceptions.

In this movement we can depend upon the unanimous support and influence of the entire medical profession, because it concerns the medical practitioner almost if not quite as much as ourselves. After having achieved this cardinal point, we will hold a position toward the people, essentially differing from that of any other class of business men, amounting almost to that of a privilege, for from mere dealers in drugs we will become pharmacists in fact and by right and ignorance and incompetence would be of neeessity expunged from the ranks of our profession. Then registration and graduation would be worth something more than the paper on which they are written, for as matters thus far have stood, we are continually exposed to suits at law by the people "for trespass? on the case," laying claims for damages soaring beyond tens of thousands.

Pharmacy is not so much a commercial as a scientific occupation and it is to the interest of the state as well as its own advancement that it should hold an exclusive position or privilege. But this privilege cannot be combined with free trade, which our brethren in Albion are endeavouring, trying to combine German exactness with English latitude, allowing "chemists" to dispense medicines on their own advice and recommendation; they may even try their luck at surgical operations! Does a chemist, apothecary, pharmacist or whatever else we may call a dealer in drugs possess the knowledge requisite and involved even in minor operations?

The second point will be to make graduation, etc. something more than a name, so that every graduated assistant will be responsible for

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his own accidental shortcomings. All other requisites will suggest themselves.

When we have attained these points, there will be something like remuneration (though indirect) for our various offices as detectives, registrars, guardians of the physical welfare of our fellow-citizens etc. etc., in short, our honorable calling.

There is nothing new in all these measures; they have all been tried and enforced by other nations, the beginning of whose civilisation is lost amid the sombre shadows of antiquity. And we here, we will have to do pretty much the same, or let things be what they are.

If the achievement of these measures seems to be too formidable, clashing with certain influential interests of particuliar branches in the business, or encountering insurmountable obstacles in the representatives of the people who superintended the legal grist-mills, then it will be our turn, though only individually, to grasp the people by their own horns, to exact bonds as security ample enough from our assistants, whether graduates or not, in order to protect ourselves against their possible mistakes, for de nihilo nihil fit.

If we fail to sueceed, then let other natio ns elevate the standard, etc., as high as they please, while we stoically peddle our wares as of yore.

This subject is of so much importance to the future status of the drug business, that every one engaged in it, however insignificant his abilities, must exercise the right of discussing it; if his views are extreme, partaking of the properties of lapis infernalis, or untenable, then others may dissect them with the scalpel of logic, or anihilate them entirely if they can by their better understanding. Half-way measures, however, are worse than none. The Chicago Daily Tribune, dated the 19th inst., brings an article entitled "Criminal Jurisprudence," from which the following is quoted:

The Joint Committee on Revision of the Legislature of this State has prepared and submitted "A bill for an act to revise the law in relation to criminal jurisprudence." While it generally conforms to the present statute, with the exception of mere verbal modifications, there are some additions or changes which are worth noticing.

Milk.—It is provided, for the benefit of city people, that whoever adulterates any milk with water, chalk or other substance, or sells such milk, shall be confined in the County Jail not exceeding one year, or fined not exceeding $500.

Selling Poison.—It is provided that:

If any druggist or other person sells any arsenic, strychnine, corrosive sublimate or prussic acid without the written prescription of a physician, and fails to keep a record of the date of such sale, the article and amount thereof sold, and the person to whom delivered, he shall be fined not exceeding $50 for each neglect. Whoever purchases any such poison, and gives a false or ficticious name, shall be punished in the same manner."

If these measures should obtain force and effect, they will be nothing else but mere prohibitions to which heavy fines are attached, enforced only in a passive manner, for practically they will operate as

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hooks, for the people to tackle their claims on against the druggist or any other person. In this case of selling poisons the State will first have to buy books and furnish them to druggists before it can impose a fine, besides the latter is entirely superfluous, for it should commission the boards of health of cities with the enforcement of such laws. In this feeble attempt in the right direction, there are two redeeming features: It prohibits the sale of four poisons without keeping a record and emposes the same fine on any person giving a ficticious name; the first does not amount to much, simply because it will become one of our duties, but the latter shows that when we shoulder responsibilities, the people will have to do the same, and indicates to what contemptible means they resort in order to gain their point, to prove which the writer's experience furnishes ample testimony. But this Bill gives the names of only four poisons, there being several hundred and nearly a half a thousand articles which are poisonous, or may become so under special circumstances, accidents, etc., in fact all drugs are dangerous, a few excepted, in the hands of the people, who know nothing but their names and our representatives ought to provide, if not for the whole, then at least "for the benefit of the city people" against this universal danger of killing themselves. Taking five hundred dollars worth of stock in their milk, it is reasonable to presume that they will take any amount in their lives.

A thorough criticism on all the points involved far surpasses the limits of one short article; the subject in total is so extensive, presenting so many aspects, that several vital points have been barely hinted at, chief among which, are, for instance, the duties of the State involved in the premises, &c., these and others the writer hopes to find time for discussing on another occasion. Whatever has been advocated is submitted for earnest and patient consideration.

CHICAGO, January, 1874.

FORMULAS FOR ELIXIRS,

ADOPTED BY THE AMERICAN PHARMACEUTICAL ASSOCIATION AT ITS TWENTY-FIRST ANNUAL MEETING, HELD IN RICHMOND, VIRGINIA, SEPT. 1873, AND RECOMMENDED TO BE USED BY PHYSICIANS AND PHARMACISTS.

REPORT OF COMMITTEE, JOHN F. HANCOCK, CHAIRMAN.

"*Resolved*, That a committee of five be appointed by the President, to take into consideration the subject of elixirs and similar unofficinal preparations, in all its bearings upon pharmacy, and if deemed proper, to report suitable formulas for the guidance of the members of this Association."

The universal solvent has been long sought for, but has not, and most likely will never be found, and it is quite as unlikely that the formula for a simple elixir will be found which will afford a preparation that will meet all the requirements of a medicating vehicle; yet it may be possible to meet the general indications of a simple elixir, by which many unpleasant medicines can be modified in taste and odor,

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and rendered tolerant to the most delicate stomach, without modifying or changing in the least their therapeutic properties.

To arrive at most satisfactory results, a series of careful experiments were instituted, which we believe have furnished good results. The formulas resulting from our experiments, which we herewith have the honor to present, are accompanied with corresponding preparations. It will be observed that this report has its restricted limits, and it is not our purpose to recommend a long list of useless combinations, which might savor of empiricism and tend to deceive physicians.

In our conclusions we may be criticized by those who have apparently accomplished the task of constructing formulas for simple elixirs, as also those who have adopted such formulas. In this, however, we have no aspirations to vain-glory, but have simply followed in the track of duty, performing to the best of our abilities the task imposed upon us. Therefore we invite the scrutiny of this Association, before any final judgment has been passed upon our work.

Elixirs are not a new class of preparations: on the contrary, they are very old; and after all they remind us of the adage, "Nothing new under the sun."

We doubt very much that the elixirs of any age ever partook more of the character of nostrums than those of the present day, and were it not for the fact that we are conscious that all trades, professions, and classes of men have their follies, we would express horror at the pharmaceutical folly, as manifested in the modern elixirs; nor is there anything which reminds us more of the "Mithridate" of old, or the "Theriaca" of mediæval times, than the class of pharmaceuticals known as elixirs.

For if we examine, it will be found that almost all contributors to the elixir literature have indicated their respective formulas by the greatest multiplicity of ingredients; indeed, they sometimes exhibit the greatest variety of remedies, representing the three grand divisions of nature,—animal, vegetable, and mineral; for instance, elixir of beef, bark, and iron, &c.

The greatest commendations which we can bestow upon elixirs as a class is, that they are too feeble to do much harm, even when they contain strychnia, and that they act splendidly as placebos; particularly is this the case with those purporting to contain the *bitter alkaloids*, and are so very pleasant to the taste, that scarcely a particle of bitter can be detected. Just here your committee deem it proper to state, that they have not been able to overtake some of the elixir manufacturers, in the act of giving quinia, strychnia, and other bitter remedies, in clear solution, without giving at the same time their characteristic bitter taste. This may be for want of greater experience in this line, or perhaps for want of a more profound understanding of the pharmaceutic art, in the domain of *elegant pharmacy;* or it may be for want of a better understanding of the demands of the medical profession and the public for pleasant medicines. We have endeavored (as the accompanying samples will attest) to place the ingredients indicated by the formulas in the vials, while those who have excelled us in the art of completely masking bitterness, may possibly have the active

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principles only represented by the label. Indeed, we may be excused for such a conclusion, from the fact, that it has been discovered, that many of the so-called preparations of phosphate of iron are made by substituting pyrophosphate of iron, and that many of the elixirs of Calisaya bark, *so called*, are not made with the *bark*, but from variable proportions of one or more of salts; ferrated elixir of Calisaya, and many other elixirs, stand in the same deceptive list. This may or may not be warranted, from the plea of precedence, but respect for truth and consistency compels an adverse judgment on our part; and to finally meet this pharmaceutical depravity, your committee would most respectfully recommend a correction of the elixir nomenclature, and when possible, to give names that will correctly represent the compounds in question.

It therefore becomes necessary to drop the names elixir of Calisaya bark, ferrated elixir of Calisaya, and the like, unless made from the bark. If made with quinia or cinchonia, iron, &c., the name should be given so as to represent that the preparation is the simple elixir ferrated with quinia, or the name of whatever active medicines may be combined with the simple elixir and iron.

It is advisable that physicians should abandon the popular habit of ordering A., B., and C.'s elixirs, particularly if they are proprietary, and the formulas withheld from pharmacists and physicians, which, as a rule, is unjust to the dispensing pharmacist, who is in most cases fully as competent to make the compounds *secundum artem* as is the special elixir manufacturer. The manufacture of preparations for, and the compounding of, physicians' prescriptions, should be an open competition, intrusted only to thoroughly qualified pharmacists. If this be granted, it is then unfair for the physician to command the pharmacist of one city to employ a pharmacist in a distant city to prepare the remedies for his prescriptions, except in very remarkable cases. It is further suggested, that physicians use the simple elixir or red elixir, and extemporize with them such remedies and in such proportions as the individual cases may indicate, regardless of the beautiful appearance of the preparations, whether or not they be *solution* or *mixture*. The pleasant taste and odor of the simple elixir qualifies it pre-eminently as a vehicle for the administration of quinia, strychnia, iron, bismuth, pepsin, &c., as also any of the solid and fluid extracts. The extemporized elixirs should not be filtered, but always dispensed, if necessary, with the direction: "Shake the vial before pouring out each dose," as by filtration the medicinal quality of the elixir is sometimes sacrificed for the sake of good appearance.

The members of the committee being absent except its chairman, some confusion is experienced in making this report, from the fact that two others of the committee have suggested some formulas, which, being at variance with our views, because of the multiplicity of ingredients, are omitted. Therefore, the report which we now have the honor to present, is essentially a minority roport, or only that of the chairman of the committee. The plan which we respectfully recommend is similar to that adopted by Professor C. Lewis Diehl, which was published some time ago in the pharmaceutical journals,

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viz., the adoption of a formula for simple elixir, to be used as a general medicating vehicle; and to fully meet the reasonable demand for elixirs, a list of formulas is herewith submitted, simple in construction, easy of manipulation, and believed to be fully as efficient in medicinal properties as are those more complex.

In our aim at simplicity, we have endeavored to harmonize with the treatise of Professor Diehl on the subject, and in some cases have given his formulas, as will be shown by notes of explanation. In all cases, however, where simple elixir is ordered, that made from the formula given in this report is intended.

For want of time, and owing to ill health during the early part of this year, the subject has not received that thorough attention which it deserves, and which it was our intention to give. Experience suggests the inexpediency of continuing the committee, because the members have not the convenience of easy communication, living as the do in remote parts of the country; and, believing that one member of the Association, drawing his information from various sources. can make a more satisfactory report than the several members of a committee, we would advise that the committee be discharged from the further consideration of the subject, and that the whole question be referred to the Committee on Unofficinal Formulas. Should the Committee on Unofficinal Formulas give that attention to the work which it so richly merits, an interesting and profitable report may be expected at the next annual meeting of this Association.

Should this committee act in an eclectic capacity, doubtless much valuable information will be gained that may be useful to the Committee on Revision of the Pharmacopœia. The investigation should not be restricted to any particular branch of pharmacy, but include the entire range of unofficinal formulas.

UNOFFICIAL FORMULAS.

Compound Powder of Cochineal.

Take of	Cochineal in powder,	120 grains.
	Alum, in powder,	120 grains.
	Carbonate of Potassium	120 grains.
	Bitartrate of Potassium,	240 grains.

Mix. Keep in well-stoppered vial.

Compound Tincture of Cochineal.

Take of	Compound Powder of Cochineal,	120 grains.
	Diluted Alcohol,	2 fluid ounces.

Slightly warm the diluted alcohol and mix with the powder, macerate in a stoppered vial for twelve hours, and filter for use. This is permanent, and imparts a beautiful red color to elixirs and solutions which have no acid properties.

Spirit of Orange.

Take of	Oil of Sweet Orange,	1 fluid ounce.
	Stronger Alcohol,	15 fluid ounces.

Mix. This is made in proportions to conform with the spirits of the U. S. P., and is a pleasant and convenient form of orange flavor.

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Simple Elixir.

Take of Spirit of Orange, ... ½ fluid ounce.
Stronger Alcohol, ... 4 fluid ounces.
Cinnamon Water, ... 6 fluid ounces.
Syrup, ... 6 fluid ounces.

Mix.

This is a turbid mixture. For many purposes it is not necessary to filter before using, but generally it should be clear, particularly when used for physicians prescriptions, and in making some elixirs. Filtering-paper pulp, made by beating scraps of chemically pure filtering-paper in a mortar, in the proportion of sixty grains of paper to half fluid ounce of water, added to sixteen fluid ounces of the elixir, agitated briskly for a few moments, and filtered, renders the elixir perfectly limpid. The paper is free from the chemical objections urged against carbonate of magnesium, chalk, &c., which are frequently used as clarifying agents.

The very pleasant taste and odor of this elixir, its freedom from color and chemical impurities, commends it for general use as a medicating vehicle.

Red Elixir.

Take of Comp. Tincture of Cochineal, ... ½ fluid ounce.
Simple Elixir, ... 15 fluid ounces.

Mix.

This is sometimes preferred as a simple elixir because of its beautiful color.

Elixir of Calisaya Bark.

Take of Tinct. Cinchona, U. S. P., 1870, ... 22 fluidrachms.
Simple Elixir, ... sufficient to make 16 fluid ounces.

Mix and filter. This contains *the virtues* of two grains of Calisaya bark in one fluidrachm.

Elixir of Calisaya Bark with Iron.

Take of Elixir of Calisaya Bark, ... 15 fluid ounces.
Warm Distilled Water, ... 1 fluid ounce.
Citrate of Iron, *soluble*, ... 128 grains.

Dissolve the iron in the warm water and add the elixir. Filter if necessary. Each fluidrachm of the unfiltered elixir contains one grain of the iron salt, and the virtues of nearly two grains of Calisaya bark.

Compound Elixir of Cinchona.

Take of Compound Tinct. of Cinchona, U. S. P., 1870, ... 22 fluidrachms.
Simple Elixir, ... sufficient to make 16 fluid ounces.

Mix and filter. If not required for immediate use, this and also the Calisaya elixir should stand for about twelve hours before filtering.

Compound Elixir of Cinchona with Iron.

Take of Compound Elixir of Cinchona, ... 15 fluid ounces.
Warm Distilled Water, ... 1 fluid ounce.
Citrate of Iron, *soluble*, ... 120 grains.

Mix. Proceed as for Elixir of Calisaya with Iron.

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Elixir of Citrate of Iron.

Take of	Citrate of Iron, *soluble*,	256 grains.
	Warm Distilled Water,	1 fluid ounce.
	Simple Elixir,	15 fluid ounces.

Dissolve the Iron in the warm water and mix with simple elixir. Filter.

Elixir of Pyrophosphate of Iron.

Take of	Pyrophosphate of Iron,	256 grains.
	Warm Distilled Water,	1 fluid ounce.
	Simple Elixir,	15 fluid ounces.

Make according to directions for Elixir of Citrate of Iron.

This is the same in medicinal strength as Professor Diehl's formula.

Elixir of Citrate of Bismuth.

Take of	Citrate of Bismuth and Ammonium,	256 grains.
	Warm Distilled Water,	4 fluid ounces.
	Water of Ammonia (drop by drop),	sufficient.
	Simple Elixir,	sufficient to make sixteen fluid ounces of finished Elixir.

This is the same bismuth strength as Professor Diehl's formula, viz., two grains of citrate of bismuth and ammonium in each fluidrachm.

Elixir of Pepsin.

Take of	Saccharated Pepsin, Scheffer's formula,	256 grains.
	Sherry Wine,	14 fluid ounces.
	Simple Syrup,	2 fluid ounces.
	Fluid Extract of Ginger,	25 drops.

Dissolve the pepsin in the wine, mix the fluid extract of ginger with the syrup, and mix together. Filter if necessary. Contains two grains of pepsin to the fluidrachm.

Elixir of Valerianate of Ammonium.

Take of	Valerianate of Ammonium in crystals,	256 grains.
	Compound Tinct. of Cochineal	½ fluid ounce.
	Simple Elixir,	15½ fluid ounces.

Dissolve the valerianate of ammonium in two ounces of the simple elixir, and carefully add water of ammonia until the solution is exactly neutral to test-paper. Mix with the balance of simple elixir, and then add the compound tincture of cochineal.

This is the formula of Professor C. Lewis Diehl, with the exception of the simple elixir. Notwithstanding this preparation contains a larger quantity than usual of the valerianate of ammonium (two grains of the salt in each fluidrachm), yet its unpleasant taste and odor is effectually masked by the fragrance of the simple elixir.

Elixir of Valeriante of Ammonium with Quinia.

Take of	Sulphate of Quinia,	128 grains.
	Elixir of Valerianate of Ammonium,	16 fluid ounces.

Mix. Filter if necessary. Sulphate of quinia is soluble in elixir of valerianate of ammonium to twice the quantity here ordered.

Compound Elixir of Sumbul.

Take of	Tincture of Sumbul (Brit. Ph. 1867),*	4 fluid ounces.
	Syrup,	4 fluid ounces.
	Compound Tincture of Cochineal,	½ fluid ounce.
	Elixir of Valerianate of Ammonium;	8 fluid ounces.

Mix. (*See foot note page 50.)

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The elixir is slightly turbid, owing to the resin of the sumbul, which, if filtered out, must lessen its medicinal powers. This is given as a type of *extemporaneous elixirs*, which should not be filtered, but dispensed with the direction, "*Shake the vial before pouring out each dose.*"

Elixir Pyrophosphate of Iron, Quinia, and Strychnia.

(C. Lewis Diehl's Formula.)

He says: "This requires particular manipulation, which precludes the use of simple elixirs.

"The following formula, the result of concert experiments of my friend, Mr. E. Scheffer, and myself, has been used by me since autumn, 1869, and I can recommend it as uniformly successful, when the manipulations are carefully conducted:

"Take of Sulphate of Quinia,	60 grains.
Strychnia,	1 grain.
Citric Acid,	5 grains.
Stronger Alcohol,	3 fluid ounces.
Spirit of Orange,	80 minims.
Syrup,	6 fluid ounces.
Pyrophosphate of Iron,	½ troy ounce.
Distilled Water,	7 fluid ounces.
Water of Ammonia,	suff. quantity.

"Triturate the sulphate of quinia, strychnia, and citric acid together, until minutely divided, then add the alcohol and spirit of orange. Warm the syrup slightly (to about 150° F.), and add to the turbid mixture, when, upon stirring, the mixture becomes clear. To this add the pyrophosphate of iron, previously dissolved in the distilled water, and finally, carefully add water of ammonia, drop by drop, until the elixir is perfectly neutral to test-paper, filter. The finished preparation has a greenish-yellow color, a pleasant flavor of orange, and is permanent."

Bitter Wine of Iron.

(James T. Shinn's Formula, slightly modified.)

We have had several years' experience with the following formula, and it has given entire satisfaction to prescriber, dispenser, and consumer.

Take of Sulphate of Cinchonia,	45 grains.
Sulphate of Quinia,	15 grains.
Citric Acid,	60 grains.
Citrate of Iron, soluble,	240 grains.
Concentrated Tinct. Fresh Sweet Orange-peel,	3 fluid ounces.
Distilled Water,	3 fluid ounces.
Sherry Wine,	8 fluid ounces.
Syrup,	2 fluid ounces.

Dissolve the sulphates and citric acid in two ounces of the water, and the iron in the remaining ounce of water: mix two solutions, and add the other ingredients, previously well mixed together.

The only change from the original formula is in the kind and quantity of orange flavor, for which we claim an improvement. See *Proceedings of American Pharmaceutical Association*, 1864, p. 234.

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Elixir of Gentian with Iron.

Take of Extract of Gentian,	128	grains.
Citrate of Iron, soluble,	128	grains.
Distilled Water,	1	fluid ounce.
Simple Elixir,	15	fluid ounces.

Dissolve the extract and iron in the water, *warmed*, and add the simple elixir: filter.

Elixir of Bromide of Potassium.

Take of Bromide of Potassium,	640	grains.
Red Elixir,	16	fluid ounces.

Mix.

This contains five grains of the salt in each fluidrachm, and is given as a type. The red elixir does not seem to answer for the elixir bromide of calcium; caramel is a more suitable coloring substance for the calcium elixir. We prefer the simple elixir in this case, and to use no coloring substance.

Syrup Licorice Root.

Take of select Licorice Root in moderately coarse powder,	4	troy ounces.
Diluted Alcohol,		sufficient quantity.
Sugar,	12	troy ounces.

Moisten and pack in a conical percolator; macerate for twelve hours, percolate to exhaustion. Place the tincture over a watch bath until reduced to ten fluid ounces, filter, and then add the sugar; lastly, sufficient distilled water to make sixteen fluid ounces of finished syrup.

The syrup of licorice root, when carefully prepared, is more effectual and more convenient for masking the bitterness of quinia, than is the very popular "compound elixir of taraxacum," and being free from the stimulating influence of alcohol, which is present in the elixir, is well adapted for children. The proper proportions will be one grain of quinia (any salt of it), to the fluidrachm, and if those for whom quinia is ordered, will take the precaution to chew a small quantity of licorice root, previous to taking the quinia mixed with the syrup of licorice, in the proportions here recommended, scarcely any bitterness will be observed. As a matter of course, acids mixed with quinia and licorice syrup, will immediately develop the bitter taste.

It has of late become fashionable to use glycerin as an antiseptic and solvent in elixirs, as well as other compounds of pharmacy, but our aversion to the general use of glycerin for internal administration, for various reasons, has prevented its introduction in our formulas.

The results of our investigations of liquid pepsin preparations, will not warrant the introduction of more than the one formula, which is really a wine of pepsin, and has been found useful in many cases.

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* Tincture of Sumbul (Brit. Ph. 1867,) is made by macerating and displacing two and a half ounces avoirdupois of powdered sumbul with proof spirit, so as to obtain one imperial pint (nineteen fluid ounces and one and half fluid drahms U. S. measure) of tincture.—EDITOR.

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FORMULÆ FOR PEPSIN PREPARATIONS.

BY HENRY BIROTH.

All Formulæ for Elixirs and other preparations containing Pepsin, heretofore published, in the various Pharmaceutical Journals, differ so greatly in regard to doses, as well as the mode of preparing, that the demand for *uniformity* and *simplicity* in these Preparations has become quite necessary. Now for the last two years I have been manufacturing Pepsin, and consequently have paid much attention to the different preparations in which Pepsin is used. The results are the following formulæ, which I submit to the Pharmaceutical Profession. They are based upon the dose of the remedies used therein, and their simplicity is evident. Elixirs, &c. can be prepared according to these formulæ instantly, when prescribed, or kept on hand, in the smallest quantities; they are elegant, palatable, and may be modified by the Physician ad libitum.

The dose for children is from a half to one *tea*spoonful. For adults, from a half to one *table*spoonful.

Each teaspoonful contains, in grains,

Pepsin.	Iron.	Bismuth.	Quinine.	Strychnia.
2	1	½	¼	1-128

Each tablespoonful contains, in grains,

Pepsin.	Iron.	Bismuth.	Quinine.	Strychnia.
8	4	2	1	1-32

SYRUP OF PEPSIN.

Powdered Pepsin,.........256 grains.
Muriatic Acid,............ 1 dram.
SyrupOrange Flower Water 16 ounces.
Mix.

WINE OF PEPSIN.

Powdered Pepsin,.........256 grains.
Muriatic Acid,............ 1 dram.
Sherry Wine,............ 16 ounces.
Mix.

ELIXIR OF PEPSIN.

Powdered Pepsin,..........256 grains.
Muriatic Acid,........... 1 dram.
Orange Flower Water,..... 8 ounces.
Bitter Almond Water,...... 2 ounces.
Simple Syrup,............ 2 ounces.
Glycerin, ... 2 ounces.
Deodorized Alcohol,........ 2 ounces.
Mix.

ELIXIR OF PEPSIN AND IRON.

Elixir of Pepsin,........... 16 ounces.
Citrate of Iron, soluble.....128 grains.
Mix

LIQUID PEPSIN.

Powdered Pepsin,.........256 grains.
Muriatic Acid,........... 1 dram.
Glycerin,................. 6 ounces.
Water,.................... 10 ounces.
Mix.

AROMATIC LIQUID PEPSIN.

Powdered Pepsin,.........256 grains.
Muriatic Acid,............ 1 dram.
Glycerin,.................. 6 ounces.
Orange Flower Water..... 8 ounces.
Bitter Almond Water...... 2 ounces.
Mix.

ELIXIR OF PEPSIN AND BISMUTH.

Elixir of Pepsin,............16 ounces.
AmmonioCitrate of Bismuth 64 grains.
Mix.

ELIXIR OF PEPSIN AND QUININE.

Elixir of Pepsin,............16 ounces.
Sulphate of Quinine,.........32 grains.
Mix.

ELIXIR OF PEPSIN, IRON AND BISMUTH.

Elixir of Pepsin,.............16 ounces
Citrate of Iron, soluble.....128 grains.
Ammonio-Citrate of Bismuth 64 grains.
Mix.

ELIXIR PEPSIN IRON AND QUININE.

Elixir of Pepsin,.. .... 16 ounces
Citrate of Iron, soluble,.. ..128 grains.
Sulphate of Quinine,........ 32 grains.
Mix.

ELIXIR PEPSIN, IRON, QUININE AND BISMUTH.

Elixir Pepsin,..............16 ounces.
Citrate of Iron, soluble,... 128 grains.

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Ammonio.Citrate Bismuth,	64 grains.	and Bismuth, ...	16 ounces.
Quinæ Sulphate,..........	32 grains.	Sulphate Strychnia,........	1 grain.
Mix.		Mix.	

ELIXIR PEPSIN, IRON, QUINIE, BISMUTH AND STRYCHNIA.

Elixir of Pepsin, Iron, Quinine

REMARKS.—To obtain a good preparation, Pepsin has to be treated with water, and acid, allowing it to swell and dissolve; then filter, and add the other ingredients, alcohol last. The salts of Iron and Bismuth should be perfectly soluble, otherwise a few grains of carbonate of ammonia are to be added when rubbed together.

THE POPULAR REMEDIES OF TOORKISTAN,

BY PROF. DR. GEO. DRAGENDORFF.

When last April of this year I concluded my essay; "*On some Remedies employed in Toorkistan*", I did not believe that I would so soon collect further information on this subject, as it indeed became possible. The opportunity offered itself at the polytechnic exposition in Moscow, the Toorkistan section of which presented a large and very instructive series of 250 medicaments. By the friendly services of Messrs. *Fedschenko* and *Krause* I was enabled, to elaborate this collection, though but the smallest part of it was set up. They also with the greatest liberality, in order that I might investigate them further, left with me several samples, which I could not then and there determine. Thus I had a chance to see, with few exceptions all those drugs, the names of which *Palm*, independently from *Fedschenko*, reported in his second treatise, (see Arch. f. Pharm, 1872 Bd. 199, p. 226), togethrer with some not mentioned by him. In so far I believe to have obtained a very complete insight of the materia medica of Toorkistan, and of which I will report in this essay.

The drugs presented at Moscow are enumerated by *Fedschenko* in the catalogue of the Toorkistan division. Some determinations which there occur, are by myself.

A short introduction to section 23 of the catalogue says the following about the conditions in Toorkistan; "medicine is mostly practiced by persons, whose combined functions are those of a priest, physician and apothecary and who are called *Hullah*, i. e. learned men. But those also who are not priests occupy themselves with healing of diseases and they, the *Tabîbe*, having obtain their education mostly in *Bokhara*, but this latter circumstance must not prevent us however, from looking upon Persia as the real and immediate home of medical knowledge. On this point reliable information was brought to me by *Petzholdt* and in support of which I shall cite further proofs at the conclusion of this article. The fact may here be registered, that some of the renowned physicians directly immigrated from Persia.

The sale of remedies in smaller places is carried on in the stalls of merchants; in larger cities special drug shops are found in the bazars,

*Zur Volksmedicin Turkestans; von Prof. "Dr. George Dragendorff," printed separately from Buchner's N. Repertorium. Band XXII, Heft 3, and sent to the editor of this journal by the author.

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similar to those which *Goebel* saw in Astrakhan, *Sam. George Gmelin* and Honigberger in Persian cities, and *Oppenheim* in European and Asiatic Turkey. These drug-booths are kept by a Mullah or Tabîl; they generally have one or two rooms, where in boxes, bottles and bags the remedies are kept, in addition numerous talismans are found hailing from Mecca or Maderia.

Sympathetic cures are, as in the Orient generally, very popular. Concerning the dispensation of remedies, a preference for simple medicines is said to be noticed, but which, I believe has to be so understood, that mostly simple medicaments are dispensed to the patient, in order that he may add them to his food or drink or even prepare from them decoctions, infusions &c. Herein we have already a difference as compared with the habit of the Orientals, among whom even to this day very complicated mixtures are in use according to the model of *Galen* and *Avicenna.*

Glancing over the list of medicaments, we must agree with *Fedschenko*, that a particular prediliction for such as are of vegetable origin may be recognized. Mineral substances seem to be rarely employed, still more so drugs derived from the animal Kingdom. Leeches (and cupping-glasses) are more frequently made use of, especially by most Mahomedans.

That medicine in Toorkistan knew how to keep clear from later European influence, seems to me to follow, when its series medicaminum is compared with those, which *Honigberger* laid down for Persia, *Ainslie* for Hindoostan, *Forskal* for Arabia and *Hussan* for Egypt. In these latter we find already many American drugs mentioned (sarsaparilla, jalapa etc.), though they have been compiled at the ending of the previous and the beginning of the present century. In *Fedschenko's* list a sarsaparilla is noticed (capsicum further on), but this comes from China and has nothing to do either with the American or Asiatic kinds of smilax (aspera L., lancefolia Roxb., ovalifolia Roxb). Only quinia, *Palm* asserts expressly, has been introduced by the Russians. Some other articles, which are mentioned as from Russia, were known to the Orientals long ago, and it is but a matter of convenience, when they are now brought from that country.

The drugs which I examined, I will treat in a similar manner, as in a former essay, but in a somewhat systematic arrangement. Some supplements, which I can add to my statements there made, shall find room in the proper place and therefore I will again notice, in the interest of comprehensiveness, the names of all the drugs formerly spoken of. Communications concerning the source and manner of using these drugs were not received this time for all, and were more scarce than previously. I borrow them for the most part from *Fedschenko's* catalogue. I would not omit them, since they furnish a means, although not a sufficient one, to continue the comparison with the ancient authors, which I commenced in my former publication. That *I* do not believe, in all the effects, which in Toorkistan are ascribed to the several remedies, I hardly need to alluded to. When I have recorded as carefully as possible such effects as are *erroneously*

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attributed to them, then it was done on purpose, and as I believe, with perfect right. Nothing is so much suited to present to us the stability of medical knowledge of the Mahomedan as they, for no other science requires more to observe, to collect experience, to exercise criticism, than medicine. And it is in a high degree deserving notice, when the Toorkistan Tabîb returns to us in the same words with the same erroneous opinion, as a thousand years ago did Persian and Arabian authors, or as *Galen* and *Dioscorides* did 1500—1700 years ago.

Concerning the names it is necessary to say, that they were first written down in Russian characters, as they were pronounced, and that some of them might have possibly appeared somewhat different, if I myself had heard and noted them. Alterations I made only in those cases, in which I was firmly convinced to have found mistakes in writing or printing. In a similar manner I proceeded with those names, which I derived from other authors and especially then again, when I could suppose that they (*Ainslie*, *Gmelin*, *Pallas*, *Forskäl*, *Husson*, *Honigberger*) had tried to reproduce in characters of their own tongue what they heard. On account of the arbitrariness which the vocalisation of the Arabian language admits of, small variations even in words, written alike, occur in different regions, which perhaps were not always with importance. Much as I liked to add frequently to the style of writing in our letters, which has now been adopted by Orientalists, yet this and the use of Arabian characters, which I had in view for particular cases, was not allowed by the arrangement of the printing establishment.

In the preparation of this essay I also enjoyed the sound assistance of our botanists *Bnnge* and *Willkomm*, as well as that of our Arabian scholar *Volk*, to whom I owe many thanks for advice readily given. The same is due finally to Mess. *Fedschenko* and *Krause*, to whose friendly services these lines bear witness.

I hope to be able to make a third communication on this subject, as soon as the notes promised by the Messrs. *Casimir Johannson Dr. med.* and *W. Leutner Mag. pharm.* as well as the chemist *Teich Mag. pharm.* (the former two of my pupils living, and the latter professionally employed in Toorkistan) shall have been received.

(TO BE CONTINUED).

A NEW SOLVENT OF PHOSPHORUS; ITS PREPARATION AND PHARMACEUTICAL USE.

BY A. W. GERRARD,

Dispenser and Teacher of Pharmacy to the University College Hospital.

The principal known and most generally adopted solvents of phosphorus for pharmaceutical purposes are bisulphide of carbon, chloroform, ether, alcohol, oil of almonds, oil of theobroma, and mutton suet.

The power of these bodies to dissolve their element varies from

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any proportion to less than half per cent; the most powerful being bisulphide of carbon, the least, alcohol.

Most of the above solutions of phosphorus, when dispensed, are of an unsatisfactory and unstable character. Those which are fluid and miscible with water in the presence of mucilage—the manner in which it is usually prescribed—are rapidly decomposed and become inert; they are likewise nauseous and objectionable to the patient in an extreme degree. The solid forms are but little better and are exceedingly troublesome to manipulate.

Bisulphide of carbon has been recommended by Mr. Proctor, of Newcastle, as a means of dispensing phosphorus in the pill form, and it answers the purpose very well, with the exception that the pills retain a compcund smell of phosphorus and bisulphide of carbon, which is repulsive in the utmost degree.

The new substance which I propose to add this evening to the list of solvents of phosphorus is resin, that body described in the Pharmacopœia as the "residue of the distillation of the turpentine." This substance suggested itself to me amongst others as a probable solvent, and the result of my experiments upon it is that I have found it capable of dissolving four or more per cent. of phosphorus; the limit of its solubility is a question for further experiment.

I would call this substance phosphoretted resin. The method of preparing it is thus:—Take a strong wide-mouthed well-stoppered bottle and weigh it, then melt a quantity of resin sufficient to fill the bottle; let the bottle be warmed, then pour in the resin to nearly but not quite fill the bottle, reweigh, and for every ninety-six parts of resin take four of phosphorus. Now observe that the resin is in a fluid state; if so, add the phosphorus, and fix the stopper tightly. Place in a sand-bath previously warmed, and apply heat to 200° C. or 392° F.; digest at this temperature, and shake frequently until the phosphorus is dissolved.

The kind of resin to be used in this preparation is the black translucent variety, known in commerce as rosin, not that pale yellowish kind usually met with in chemists' unless it has previously been deprived of its water, of which it contains a very large amount, sometimes ten per cent.

In conducting the process, it is necessary to observe the following precautions:—In adding the phosphorus, if possible let it be in one piece, and take care that the resin is previously in a fluid condition, as then the phosphorus readily sinks below the surface, and is covered by the resin; otherwise, if the phosphorus were in small pieces and the resin semifluid, the phosphorus would rest on the half-hot resin, and speedily take fire; but by observing the above precautions, this accident may be prevented.

A bottle full of the preparation should be made at a time, as I find there is great risk of accident (having had one myself) if the vessel is only partly filled. The phosphorus is also volatilized, and deposited in the upper portion of the bottle.

Keep a thermometer in the sand-bath during the process, and maintain the temperatures between 200 and 210 C. At a higher tem-

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perature the resin boils, and the heat is liable to change the phosphorus to the red amorphous state.

When the prepared resin has cooled it is difficult to remove it unless the bottle be broken; the method I have adopted is to draw it from the bottle, when partly cooled, under hot water.

It is a pharmaceutical process which, like many others, requires care and attention to ensure success, but whatever difficulties may arise, to a practical person a remedy will suggest itself.

I will here mention a curious change which takes place if this phosphoretted resin be reheated. When it reaches a certain temperature it becomes of a whitish cream colour throughout, if the temperature be raised still higher it again becomes transparent; this phenomenon does not occur in the cooling. It is probably due to the influence of molecular change.

The formula I would suggest for its exhibition is the following:—

Take of—

Phosphoretted Resin, 4 per cent. - - -	25 grains.
Powdered White Sugar, - - - -	75 "
Tincture of Tolu, a sufficient quantity.	

Pulverize the resin, mix with the sugar, and form into a mass with tincture of tolu,—eight to ten drops are sufficient; then divide into twenty pills, each pill will contain one-twentieth of a grain. This forms a mass of an excellent consistence, and pills made therefrom retain their form and present an elegant appearance without the addition of and coating; they have but a faint odour of phosphorus, and that may be completely removed by the addition of oil of peppermint.

The experience gained from the administration of these pills in the in-and out-patients' departments of the hospital to which I am attached proves that the theurapeutic properties of the phosphorus are in no way injured or modified by this combination, but that it is fully equal to any that had been previously used.

In conclusion, I consider the advantages of this preparation to be that it is inoffensive to the tastes of the patient, definite and reliable for the prescriber, ready and convenient to the dispenser, and I believe judging from its nature it has unlimited keeping powers.—*London Pharm. Journal.*

ON THE RIGHT USE OF DISINFECTANTS,*

BY H. LETHEBY, M. B., M. A., ETC.,

Professor of Chemistry in the College of the London Hospital;
Medical Officer of Health and Public Analyst for the City of London; and
President of the Society of Medical Officers of Health.

I AM induced, Gentlemen, to bring this subject under your consideration for the purpose of removing the many dangerous fallacies which beset it, and of arresting, if possible, the unblushing quackery which disgraces it. A glance, indeed, at the so-called sanitary literature of the day will show how boldly and how confidently the use of certain inert bodies is recommended to the public as powerful

*Read at the meeting of the Society of Medical Officers of Health.

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disinfectors. The danger of this, gentlemen, cannot be overrated; for when by such means undue confidence is placed in the disenfecting power of an agent which fails in its purpose, the result is not merely a waste of materials and a loss of valuable time, but it is also a serious danger to the public. Therefore it is that we should be most careful in the selection of disinfectants—using those only which are known to be effective. It is necessary also that we should be thoroughly conversant with their several modes of action, and that in applying them we should be guided by rational principles suggested by the scientific aspects of the subject.

It is hardly necessary to say that the question in all its relations is very large and extensive; for by the term "disinfection" I mean the removal, or neutralization, or destruction of that which is offensive to the senses or hurtful to the body, limiting it of course to those cases where offensive effluvia, or noxious matters, or specific contagian are the subjects of treatment; and here I may remark that, although the questions before us are undoubtedly connected with the difficult problems now occupying the attention of physiologists, pathologists, and chemists as to the origin of infusorial life, and the cause of specific infectious maladies, as well as of organic decomposition, yet it is at the came time sufficiently independent of these abstruse inquiries as to be capable of very effective practical treatment at our hands, without much reference to the conflicting theories of genesis. To us, indeed, it is of little importance, except for the scientific elucidation and explanation of our empirical facts, whether the manifestations of life in a decomposing liquid be the *cause* of putrefaction and fermentation, or the *effect* of it: and whether it comes "*ex vivo*,"—that is, from pre-existing life, as the Biogenists, the Homogenists, and the Panspermatists, believe; or "*de novo*," as the Abiogenists, the Heterogenists, and the Non-Panspermatists maintain. Nor does it concern us in our practical treatment of the subject whether each dictinct kind of spontaneous organic decomposition and each specific form of infectious disease are the results of the vital manifestations of special germs—differing in each case—or whether they are caused by the molecular movements of organic matter in peculiar states of decay; for that which we aim at, and which we undoubtedly are able to accomplish, is the destruction or prevention of the hurtful thing which causes offense or produces disease. And as in many cases this is associated with the changes incidental to organic decomposition, it may be effected in one of four ways—as, first, by strengthening the affinities of organic substances, and thus enabling them to resist decay secondly, by so acting upon them with chemical agents as to produce new compounds which are not susceptible of organization or decay; thirdly, by hurrying on the changes of decomposition and oxidation, so that the particles may quickly arrive at their final stages of decay, and be brought to rest; and, fourthly, by the use of special agents which are found to have specific powers of disinfection.

As examples of the first of these methods of preventing decay I may allude to the effect of cold and to the dessication of organic matters.

As instances of the second I will refer experimently to the coagu-

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lation of albuminous matters by alcohol, creosote, the mineral acids, and most mineral salts.

Under the third head are the oxidising influence of chlorine, hypochlorous acid, premanganate of potash, and atmospheric air, aided by water and porous substances.

And as examples of the fourth method of disinfection, I may allud to sulphurous acid, to carbolic and cresylic acids, and to the volatile oils.

The relative values of these several disinfecting substances have again and again been tested by experiment. As far back as the year 1858 I entered very fully into the question of their action on sewage; but very recently they have been examined by Dr. John Dougall, of Glasgow, and Dr. Crace Calvert, of Manchester, with the view of ascerta ining their respective disenfecting powers, as tested by their action on protoplasmic and fungus life, and on vaccine lymph. I have tabulated the principal results of these experiments, and submit them to you for examination. Let us therefore discuss them in the order in which they are there placed:—

1. The Mineral Acids.—These are *Sulphurous Acid*, *Nitric Acid*, *Hydrochloric or Muriatic Acid*, *Sulphnric Acid*, and *Chromic Acid*. This is the order in which Dr. Dougall found they prevented the development of infusoria in infusion of hay, in urine, and in a mixture of beef-juice and egg albumen—sulphurous acid being the least effective, and chromic acid the most; for in the first case as much as one part of sulphurous acid in 117 of water was required to prevent such life during six days, while in the last case as little as one part in 2200 of water was sufficient. A like conclusion was arrived at when a solution of one part of the substance in 500 of water was used with a little beef-juice or egg-albumen. Dr. Crace Calvert, however, found that sulphurous acid was more powerful in its action than nitric or sulphuric acid when used in the proportion of one part in a thousand of solution of albumen, for in the case of sulphurous acid it required eleven days to produce vibrio life and twenty-one days for fungus life, there being no putrid or mouldy odour for more than forty days; whereas with the like proportion of nitric or sulphuric acid the existence of such life was observed on the ninth and tenth days. In all cases the addition of these acids in small proportions, as from 1 to 2 per cent., to putrid matters swarming with animalcules immediately arrested life. In like manner the vitality of vaccine lymph was completely destroyed by the vapours of these acids. It would seem, therefore, that they are all powerful disinfectants, and this accords with experience; for as far back as the year 1773 Guyton Morveau, one of the most distinguished chemists of France, recommended muriatic-acid vapour as a means of disinfecting hospitals; and in 1797 Dr. Carmichael Smith obtained a Parliamentary grant of £5000 for the successful use of nitrous fumes in the disinfection of our prisons. But sulphurous acid enjoys a reputation of much more ancient date. Homar tells us that Ulysses, after destroying the suitors, fumigated the rooms in which the bodies lay, as well as the rest of the palace, with the fumes of "pestaverting sulphur." Ovid, too, in the "Fasti" speaks of the cleansing and purifying power of sulphur; and Pliny,

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in his "Natural History," says "that brimstone is employed ceremoniously in hallowing of houses, for many are of opinion that the perfume and burning thereof will keep out all enchantments—yea, and drive away any foul fiends and evil spirits that do haunt the place." The Chinese have always attached considerable importance to the action of burning sulphur as an disinfectant, and have from time immemorial used pastilles of sulphur for internal fumigation, and squibs and crackers for external.

In the act of generating the gas by burning sulphur in atmospheric air, thirty-two-parts of it by weight combine with the same weight of oxygen to produce sixty-four parts of sulphurous anhydride, which occupies precisely the same bulk or volume as that of the oxygen consumed. The density of the gas is considerable, for its specific gravity is 2.247, or very nearly twice and a quarter that of atmospheric air; a cubic foot of the gas, therefore, weighs a trifle less than 1206 grains, and it takes 603 grains of sulphur and a cubic foot of oxygen, representing five cubic feet of air, to produce it. Its chief characteristic is its powerful odour; for as little as one part or volume of the gas in 100,000 volumes of air is readily discoverable by the nose; nine parts of it in 100,000 of air are disagreeable, and provoke coughing; twenty parts of it in that qnantity of air are powerfully irritating; and forty-three parts of it in 100,000 of air, or rather more than four parts in 10,000 of air, are actually irrespirable, and a much smaller quantity than this will rapidly kill plants. Water absorbes from forty to fifty times its bulk of the gas, and produces a solution of powerful antiseptic and disinfecting properties. The same is the case with the combinations of the acid with alkalies forming the sulphites and bisulphites.

2. The Organic Acids—as *Carbolic*, *Cresylic*, *Acetic*, *Picric*, and *Benzoic Acids*—are all disinfectant and antiseptic. According to Dr. Dougall, the most powerful of them is benzoic acid, for as little as one part of it in 533 of water will prevent the appearance of infusorial life, whereas as much as one part of acetic acid in 125 of water is necessary for this purpose. Carbolic acid occupies an intermediate position, for it requires one part of the acid in 267 of an organic solution to arrest the developments of animalcules for six days; moreover, according to Dr. Dougall, the addition of one part of carbolic acid to 200 parts of a solution swarming with infusoria had no injurious action on them, although the like proportion of picric or benzoic acid was immediately fatal to them. So also with respect to vaccine lymph: air saturated with the vapour of carbolic acid at ordinary temperatures had no destructive effect on its vitality after exposure thereto for twenty-four hours; and even when mixed with the lymph in the proportion of 1 per cent., and allowed to dry, the activity of the virus was not impaired. Pettenkofer, indeed, has shown that although carbolic acid will arrest the development of ferment cells, it does not destroy their vitality; for if after such treatment they are freely diluted with water, they again start into activity. Its antiseptic power, however, is evidently great; for, according to Dr. Crace Calvert, the presence of one part of the acid in 1000 in an organic solution will check decomposition and prevent the appearance

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vibrio or fungus life for more than forty days. At the Morgue in Paris, where the acid has been freely used, Dr. Devergie found that in hot summer weather one part of carbolic acid (No. 5, which contains 85 per cent. of carbolic and cresylic acids) in 1900 of water, freely applied to the dead bodies, completely prevented putrefaction; and even when diluted to the extent of one part in 4000 of water the affect was most marked. In my own experiments in the city of London I have noticed that a very small quantity of carbolic acid in the sewers prevented decomposition, and that a solution of 1 per cent., of it upon meat arrested putrefaction.

. Specimens of the acids are upon the table, there being several varieties of it in comerce for different purposes. The pure acid is a camphor-like solid, which fuses at 95° F. and boils at 366° F., the boiling point of cresylic acid, with which it is commonly associated, being 397°. It is not very soluble in water—only to the extent of obout 3 per cent.—but is is freely soluble in alcohol, ether, and glycerin. It has no acid reaction on litmus paper, although it combines with the alkalies to form salts. A good test, indeed, for the purity of carbolic acid is the solubility of five parts of it in one part of caustic soda dissolved in ten of water. You have seen its powerful coagulating action on albumen, and I hardly need say that it is an energetic caustic.

The commercial preparations of it are—1, the pure crystals for medical use; 2, the fluid crystals of the British Pharmacopœia strength for surgical purposes; 3, the loose crystals for disinfection; and No. 4 and No. 5 for commoner purposes. The last-named variety, as prepared by Messrs. Calvert and Co., is guaranteed to contain 85 per cent. of carbolic and cresylic acids, free from tar oils and sulphuretted hydrogen, and this is well suited for all the commoner kinds of disenfection. It may be used in the proportion of half a pint of the acid to two gallons of water, and if the odour is objectionable, the purer quality, No. 4, may be employed. Other preparations of it are "*the powder*" (carbolate of lime), which should contain at least 15 per cent. of acid as shown by the neutralization of the lime with hydrochloric acid" "*McDougall's fluid carbolate*," which is the acid in neutral combination; "*Cliff's antiseptic liquid*," which is a solution of the acid in soft-soap; "*Westerton's patent zymotic fluid*, which is a mixture of carbolic acid, pyroligneous acid, and ether, with a little scent; and there are several kinds of carbolic acid and coal tar soaps. But it is best to avoid these nostrums and rely on the action of the pure or nearly pure acid.

3. The Alkalies—*Lime*, *Potash*, *Soda*, *and Ammonia*—are not very powerful disinfectents unless they are used in a somewhat concentrated state, when they are useful for detergent purposes and for the destruction of organic matter. Cream of lime, for example, as well as a strong solution of potash and soda, may be advantageously employed in cleansing rooms, stables, cattle-sheds, slaughter-houses, etc.; and powdered lime, sprinkled freely about cellars, church vaults, cattle lairs, etc., will absorb moisture, carbonic acid, etc., and help the oxidation of organic matters. Added to sewage in proportion of from ten to twenty grains per gallon, it combines with the carbonic and phos-

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phoric acids, forming a flocculent precipitate which rapidly subsides, and carries with it all suspended matters as well as a notable proportion of soluble organic matter. It likewise kills the infusoria of the sewage, and checks the decomposition of it for several days.

4. THE HALOIDS.—The most important of these are *Iodine*, *Chlorine*, *Chloride of Lime*, *Chloride of Zinc*, *Chloride of Aluminium* (*Chloralum*), and *common Salt*. *Iodine*, is not of much practical importance, although it has been recommended for use in the sick-chamber. *Nhlorlne*, however, is a powerful disinfectent, and has been used with considerable success from the time (1791-92) when Fourcroy, the distinguished French chemist, proposed it as a fumigating agent. It is easily prepared by adding black oxide of manganese to strong muriatic acid—using about a quarter of a pound of the former to half a pint of the latter in a basin or dish,—frequently stirring the mixture, and, if possible, heating it. It is also produced by the gradual addition of muriatic acid to permanganate of potash (Condy's fluid); and this, indeed, is very like the preparation now advertised under the name of *chlorozone*—the muriatic or hydrochlorous acid having been added in comparatively small proportion. Chlorine is a heavy gas, its specific gravity being as nearly as possible two and a half times that of atmospheric air. It is extremely irritating, and, like sulphurous acid, cannot be effectively and safely used in the sick-chamber except for sweetening the air, as the quantity necessary to disinfect is irrespirable. The same is the case with chloride of lime, when its acid (hypochlorous) is set free by carbonic or muriatic acid, as it must be to become an effective aeärial disinfectent. In proper proportions, however, both of these agents are powerful disinfectents, as they not only check putridity and the development of animalcules in organic solutions, but they also kill such creatures when added in the proportion of about 4 per cent., and they destroy the vitality of vaccine lymph. Like other agents which favour oxidation, they actually promote decay and the generation of infusorial life when used in small proportion. To disinfect with chlorine, therefore, or with hypochlorous acid, the chamber must be vacated, so that the air may become charged with at least 1 per cent. of these agents, and then the destruction of the miasm or contagium is insured. A solution of chloride of lime in the proportion of one pound to two gallons of water (5 per cent.) is useful for washing floors, etc., but it must be used cautiously for the disinfection of clothing, as solutions of this strength act injuriously on animal tissues, although they are not so hurtful to vegetable fibers.

Chloride of Soda (Labarraque's liquid) is acompound homologous with chloride of lime, and it enters into the composition of Watt's chlorinated soap; but as it rapidly undergoes decomposition, the antiseptic power of the soap is *nil*.

Chloride of Zinc (Sir William Burnett's fluid) is a liquid which ranges from 1309 to 1594 of specific gravity—the former containing about 30 per cent. of chloride, and the latter about 54. Its action is evidently due to its power of coagulating albumen, and of absorbing ammonia and sulphuretted hydrogen. Used in the proportion of one part of the chloride to 300 of water it instantly destroys infusorial life,

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and even when diluted so as to contain but one part in 1000 of an organic liquid it checks decomposition, and prevents the appearance of animalcules and fungi for more than forty days.. Its chief use, however, is as an disinfectant of fæcal matters; for it has no power as an aërial disinfectant, and is too corrosive in its action for textile fabrics.

Chloride of Aluminium or *Chloraluu*, which is a solution containing about 15 per cent. of the salt, appears, from the researches of Dr. Dougall, to be powerfully antiseptic, for when used in proportion of only one part of the substance to 933 of water is prevented the development of animalcules for six days. Dr. Crace Calvert also found that an organic solution containing one part of chloralum in 1000 of the solution did not exhibit vibrio life until after ten days. In another experiment, however, with albumen and starch-paste—each containing 2 per cent, of the substance—decomposition with offensive odour began in nine or ten days; and in my own researches I found that putrefactive decomposition could not be prevented with less than 4 per cent. of the substance. In the illustrations before you, you will notice how ineffective it is in checking putrefactive decomposition. Moreover it is not an aërial disinfectant, and is therefore worthless in a sick-room; and with regard to its deodorising power it manifestly does not contain anything which is capable of absorbing putrid miasms. Like common alum, however, and crude sulphate of alumina, it is a good precipitating agent for sewage, and when combined with the action of lime it thoroughly defæcates such matters.

5. MINERAL SULPHATES—as *Sulphate of Zinc*, *Sulphate of Iron*, *common Alum*, and *Sulphate of Copper*, as well as the waste solutions of metalic salts from wire-working, iron-galvanising, lacquering, etc.—are useful disinfectants when the object is to coagulate albuminous matters and to destroy living organisms, as well as to neutralise offensive miasms. Each of these substances will prevent the manifestation of infusorial life in organic solutions containing from one to four parts of the salt in the 1000; and a solution composed of from one to two pounds of the substance in a gallon of water is a good disinfectant of drains and of fæcal matters directly they are discharged from the body. Mudie's disinfectant is sulphate of iron or green copperas, which is the cheapest of all these substances. None of them, however, can be advantageously used as aërial disinfectants, as they are not in any case volatile.

6. *Permanganate of Potash* and *Chlorozone* are both oxidising agents, and do not appear to exert much action on vital manifestations, but they are very active in the destruction of dead organic matter. The use, therefore, of these agents in the sick-room as disinfectants is altogether fallacious, for we have no reliable evidence of their power of destroying contaigia. The sheet, indeed, saturated with Condy's fluid, which is recommended to be hung up in the sick-chamber, will quickly, like other dead organic matter, decompose the fluid and render it inert. This property, however, of attacking and oxidising dead and decaying organic matters give its value as a means of purifying portable water, and for this purpose it is alone useful. The same

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may be said of chlorozone, for the small quantity of free chlorine present in it is not capable of much energy of action.

7. The Volatile Oils—as *Camphor Turpentine*, etc.—are probably effective to some extent, for we not only perecive that they hinder the development of animalcules and fungi, but they also generate ozone; for ages, indeed, these substances have enjoyed a high reputation as trustworthy disinfectants and deodorisers. They are the correctives universally employed in religious worship, and from time immemorial they have entered into the composition of the ointments of the high priest and the incense of the altar. Among eastern nations the practice of fumigating the house with costly spice and rich-smelling drugs has been contemporaneous with history. During the middle ages, when the plague, the black death, and the sweating sickness decimated the cities of Europe, immense importance was attached to these agents as disinfectents. The advice of the learned Dr. Caius, who wrote of the sweating sickness in 1552, was to "have always your handkerchief perfumed with a mixture of spices for your nose and your mouth, both within your house and without, and in your mouth a piece either of setwel or of the root of *Enula campana* well steeped before in vinegar roseate, or a mace, or berie of juniper. In want of such perfumes, as before said, take of myrrh and dried rose-leaves, of each a like quantity, with a little frankincense, for the like purpose, and cast it upon the coals, or burn juniper and their berries." Until very recently, too, the practice in our criminal courts was to lay a bunch of rue on each side of the prisoner, to prevent the spread of contagion brought from the infected goal. Now, it is a curious fact, as I will show you experimentally, that the oxidation of perfumes and volatile oils is generally accompanied with an active ozonisation of the atmosphere—indeed, Professor Paolo Mantegazza, of Pavia, who has carefully investigated this subject, says that it is a very convenient method of obtaining ozone: for under the influence of light (especially solar light) and air the essential oils, even in small quantities, will ozonise comparatively large proportions of atmospheric oxygen. It may well be, therefore, that the volatile oils and essences deserve the reputation they have so long enjoyed as purifying agents; and that the recommendation of Empedocles, to plant aromatic and balsamic herbs about your house as preventives of pestilence, is supported by scientific as well as impirical facts. Moreover, as benzoic acid is a large constituent of the incense used in the Latin and Greek churches, it is possible, looking at its antiseptic powers, that this also may be useful as a disinfectent.—*Medical Times and Gazette.*

EDITORIAL.

THE ELIXIR QUESTION.

We call the attention of our readers to the report on formulas for elixirs, which we reprint in this issue. We hope that the adoption of authentic formulas for this class of preparation by this National Association of Pharmacists will receive the hearty endorsement of every hon-

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orable member of the medical profession, and publicity be given the formulas by their publication in every medical journal throughout the land. We do suggest that whenever this class of remedies seem desirable for the combating of disease, the prescriber prefix the letters A.P.A. This will prevent on the part of the dispenser the substituting of the worthless concotions of A. B. & C., and at the same time it will give this *Elixir Quackery*, (the eligitimate offspring) of "Elegant Pharmacy of the Period "its" death "cold."

Whenever we have protested against this existing evils the query has been, why do not the American Pharmaceutical Association adopt formulas for this class of remedies, so that the same may become the authoratative standard to the manufacturer, prescriber, and dispenser? The Association has responded by presenting this series of practical formulas, and recommending them to the profession at large for use. Now let the members of the Medical and Pharmacal profession accept and adopt the formulas, and we prophesy that the occupation of the elixir vendors will cease to exist. The report is prefaced with the following:

To the Medical Societies of the United States:

At the Twenty-First Annual Meeting of the American Pharmaceutical Association, held in the City of Richmond, Va., in September last, a Report on formulas for Elixirs was read, and the following resolution was then adopted:

"*Resolved*, That this report be adopted, with the recommendation that these formulas be used by the members of the Association, and that the Secretary be instructed to send a printed copy of this report to the medical societies of the Union, with the suggestion that physicians, if prescribing elixirs at all, prescribe only such formulas as have been adoptedby this Association."

The undersigned takes plasure to send herewith a copy of the above-mentiened report, containing formulas for a number of so-called medicinal elixirs. It being desirable that even unofficinal preparations should be uniformly made throughout the country, it is hoped that your honorable body may deem it expedient to take such action in this matter as may tend to secure this much desired uniformity.

Very respectfully,

John M. Maisch, Phar, D.,

Permanent Secretary American Pharmaceutical Association.

125 North Tenth Street, Philadelphia, December, 1873.

THE TENNESSEE PHARMACAL GAZETTE.

The first number of this new Pharmacal publication has been received. We are pleased with its general appearance, which speaks well for the energy and progress existing in so young an organization as the Tennessee College of Pharmacy, and the Tennessee Pharmaceutical Association by whose authority it is published. We wish it success, its field of usefulness is large, and if it follows closely its title "*Eclectic*" it will always be found fighting in the good cause, and for the progress of the profession.

Book Reviews, and other items, were crowded out for want of space, and will appear in our next issue.

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THE PHARMACIST.

VOL. VII. CHICAGO, MARCH, 1874. NO. 3

BOTANIC PHARMACY.

BY THOS. J. COVELL.

Under this title the writer will endeavor to explain the meaning of the not uncommon terms NUMBER SIX, and COMPOSITION, as well as the methods of preparing them, according to the original formulas of SAMUEL THOMSON, *Botanist*, and founder of the THOMSONIAN SYSTEM of medical practice, born Feb. 9th, 1769, at Alstead, Cheshire connty, New Hampshire. His system of practice was published in an 8vo volume of 396 pages, and was entitled "New Guide to health, or Botanic Family Physician, containing a complete system of practice, on a plan entirely new, with a description of the vegetables made use of, and directions for preparing and administering them, to cure disease, to which is prefixed a narrative of the life and medical discoveries of the author; by Samuel Thomson, Boston, 1835. " The first 228 pages of the book contain the narrative of the life and medical discoveries of the author, and is replete with many tales of his many trials and tribulations, in the treatment of disease, and establishing his system through the United States; on March 3d 1813 the U. S. Patent office granted him a Patent, for his system of medical practice, which, he says, had cost him twenty years of hard labor, with much suffering and expense.

The second portion of the volume contains the complete system of practice, and a description of the vegetables used, together with directions for their preparation.

The plan adopted in describing such articles as he thought necessary to mention, giving directions how to prepare and administer them, was to class them under numbers, 1, 2, 3, 4, 5, 6, which formed his system of practice, this was thought to be the best way to give a correct and full understanding of the whole subject, each number is intended to effect a certain object, which is stated in the heading to each, as they are introduced, every article therefore that is useful in promoting such objects will be described as applicable to the number under which it is classed. The three first are used to remove disease, the others as restoratives.

No. 1.—To cleanse the stomach, overpower the cold, and promote a free perspiration.

EMETIC HERB, LOBELIA INFLATA: then follows a description of

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its properties and uses, and the methods of preparations, which were three in number. First, the powdered leaves and pods. Second, a Tincture, made from the green herb in proof spirit, equal bulks of each. Third, the seeds in powder, No. 2, (Cayenne) in powder, of each half an ounce, Umbil (American Valerian.) in powder, one dram, No. 6, (Hot Drops) one gill.

No. 2—To retain the internal vital heat of the system, and cause a free perspiration

CAYENNE, (CAPSICUM), then follow a description of its properties and uses. The only preparation required is the powder.

No. 3.—To scour the stomach and bowels, and remove the canker.

Bayberry root bark, and White pond lily root, in powder, equal parts, one ounce of the mixed powders, to a pint of boiling water.

No. 4.—Bitters to correct the Bile, and restore digestion.

Take of Bitter herb, (Balmony) Barberry, and Poplar bark, in powder, equal parts, one ounce of the mixed powders, to a pint of hot water, and half a pint of Alcohol; for hot bitters, add a teaspoonful of No. 2, (Cayenne).

No. 5.—Syrups for the Dysentery, to strengthen the stomach and bowels, and restore weak patients. Take of Poplar, bark of the root, Bayberry, bark of the root, of each one pound; and boil in two gallons of water, strain, and add to the liquid seven pounds of refined sugar, boil, and then add half a pound of ground Peachmeats; when cold add one gallon of Brandy.

No. 6.—RHEUMATIC DROPS, to remove pain, prevent mortification, and promote a natural heat. HOT DROPS is the name in general use for this preparation, for the past twenty years, although it is not mentioned as such by its author. Take one gallon of fourth proof Brandy, or any kind of highwines, one pound of Gum Myrrh, in powder, one ounce of No. 2, (Cayenne); and put them in a stone jug, and boil a few minutes in a kettle of water, let stand for a week, with occasional agitation, then strain. To be used internally, or applied externally.

This completes the series of numbered medicines, and includes the important vegetables used in the practice; then follows a description of thirty-six vegetables of less importance, which were used as substitutes, for those of the series, only two of which will be mentioned.

NERVE POWDER.—This is American Valerian, (Cypripedium) half a teaspoonful of powder in hot water for nervous diseases.

COMPOSITION, or Vegetable Powder.—Take of Bayberry root bark 2 pounds; Ginger root 1 pound; Cayenne 2 ounces; Cloves 2 ounces, all in fine powder and mix together. Take a teaspoonful of the powder with an equal quantity of sugar, and pour upon them a half teacup full of boiling water; to be taken when cool.

Then, Cough Powder, Cancer Plaster, Salve, Strengthening Plaster, Volatile Salt, Nerve Ointment, finishing with, Stock of medicines for a family of common size for one year. 1 ounce Emetic Herb, 1 pound Ginger root, 2 ounces Cayenne, 1 pint Rheumatic Drops, ½ pounds Bayberry root bark, 1 pound Poplar bark.

NEW YORK CITY, Febr., 1874.

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A FEW FACTS ON FLUID EXTRACT OF WILD CHERRY.

BY A. BOYD.

Upon enquiry for *Fluid Extract of Wild Cherry*, we are invariably supplied with an article of very thin consistence, void of sugar, of very dark color, exceedingly bitter taste and as astringent as if made from oak bark, doubtless more fitted for Tanner's purposes than to be taken into the human stomach, saying nothing of its medicinal properties.

In the first place the article as found in the market is as above described, and I regard it as being entirely unfit for the purposes for which Fluid Extract of Wild Cherry is generally used, excepting it be indicated in certain forms of diarrhœa.

I am sorry to say, that not more than one-eighth of our practicing Physicians are competent to judge of the quality or genuineness of the articles the druggist is dispensing to their patients.

I do not by any means excuse or screen the so called druggist for not knowing how this class of remedies or medicines are made, much less able to judge as to the purity and elegance of the extract in question. As it is generally found in the market it looks very much as though it had been evaporated by boiling to concentration, or else nothing more than a saturated tincture; in either case containing no Hydrocyanic acid, at least I have been unable to detect it in any of the samples I have examined of Tilden & Co., Parke, Davis & Co., Thayer & Co., McKesson & Robbins, Chas. Ellis & Son, and others representing themselves to be standard manufacturers of the U. S. Pharmacopœia. All these samples have a similarity of appearance, some burned a little more than others, many of the samples being nearly black and very astringent. I tried to eliminate the Hydrocyanic acid in each of them by evaporating the alcohol, then adding an emulsion of almonds, but without the desired effect, evidently the would be extract did not contain any Amygdalin.

While we have a Pharmacopœia for our guide and standard, let us as Pharmacists maintain its integrity to the letter, condemn and discountenance these base impositions in the market for Fluid Extracts.

If there is a so called druggist in our great country, who does not know how to make fluid extracts, let him at once apply himself to learn the art of preparing them for his own use, and from the experience gained he will be enabled to judge of the quality of the preparations in question, and be better qualified to perform the duties of his calling. By employing his time and talents for the advancement of the profession, he will merit the confidence of the physician and the public, and prove a real benefit to the community at large. He then can also recommend to the physician and his patrons that the preparation is as represented, not taking the mere label of some unscrupulous manufacturer as sufficient proof of the merits and medicinal value of the remedy.

Alas! there are too many now in our ranks who are ready and willing to take the label for a true representation of the contents

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whether it is right or wrong, they never take the trouble to examine into the matter or analyze it even if they are competent to do so, but dispense the article thus bought, and even offer as a defence "that is what I bought it for," though the article may produce prolonged suffering or other serious results to the entrusting patient.

The preparations of different manufacturers by the same name in the market, occasions frequently much trouble and explanation on the part of the dispenser, when necessity compels the repetition of a prescription with the production of another manufacturer. The patient at one detects the substitution, even in mixed solutions, and very reasonably supposes he or she is taking an entirely different remedy, though the pharmacist may declare the opposite.

The various manufacturers all desire to have it understood *theirs* is of officinal strength, and are particular to label them as such, when the preparations bear on their very face a base falsehood. Take if you please the Fluid Extracts of Rhubarb, Cinchona, or Wild Cherry, that have U. S. P. at the right hand end of the label, in large plain letters, and compare them with those which you *know* to be strictly U. S. P. of your own make, and one might well say that some establishments supply the wants of the trade for each Fluid Extract out of the same U. S. P. tank.

Therefore, if we as Pharmacists, wish to lay claim to protectionary laws for the regulation of pharmacy, and receive the honorable standing due our profession from the public at large, we should have our standard so high, and motives so pure, that our labels may be a guide and safeguard to all.

Utica, Ohio.

REMARKS ON SYRUP OF WILD CHERRY.

By Adolf G. Vogeler.

It may appear ridiculous that at the present time everybody rushes into print with this theme, and to venture another word may seem preposterous; nevertheless, a short account of my experience with this drug may prove acceptable.

Wild cherry bark is universally considered a most valuable constituent of our materia medica, both on account of its inherent sedative as well as tonic and astringent properties. Of the different preparations from the bark, the syrup, perhaps, is most in use, as it gives general satisfaction, although it may doubtlessly be improved upon as evinced by the numerous communications to our pharmacal journals.

When prescribing syrup of wild cherry, the question presents itself for consideration: what are the virtues sought for by the physician? The fluid extract should, of course, represent the bark as nearly as possible, but as to the syrup: is it given for its sedative properties alone, dependent on the presence of hydrocyanic acid, or is it expected also to contain astringent principles, etc.? The latter view being correct, then the process of the pharmacopœia is *not* efficient.

Glycerin, the much used and much abused, has been called to the rescue, though condemned by some writers *in toto*, who will not con-

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sent to its being used at all from principle; and, truly, its application has been made altogether too general, without judgment or restraint. A good thing, nevertheless, in its right place, ought not to be rejected.

Mr. J. B. Moore, in an essay on infusion of wild cherry, says:— Glycerin is one of the best solvents for the bitter principles of wild cherry bark that we have, and when associated with water forms a menstruum perfectly adapted for extracting the active medicinal virtues of the bark." This proposition bears the stamp of truth. Other pharmacists seem to have considered the subject, and in a communication to the *Journal of Pharmacy*, the addition of some glycerin to the aqueous menstruum has been suggested, but in a wrong order of proceeding; for, according to Mr. R. Rother's investigations, this agent is directly opposed to the formation of hydrocyanic acid in the bark; therefore, glycerin should not be directed to be mixed with the first portion of the menstruum. In order to obtain the greatest amount of hydrocyanic acid, and at once to extract all the bitterness and astringency, a good formula should be constructed thus: macerate the finely powdered bark with a sufficient amount of water, then percolate with a mixture composed of water and glycerin.

The observation of the retarding action of glycerin on the reaction between amygdalin and emulsin had not been made public, when instinctive inference led me, some six months ago, to construct the following formula on this principle.

Take of wild cherry bark, in fine powder, five troy ounces.
Glycerin, four fluid ounces,
Water, sufficient quantity.
Sugar, granulated, twenty-three troy ounces.

Moisten the bark thoroughly with sufficient water, pack firmly in a glass percolator, cover well, and allow to macerate for twenty-four hours; then pour on it the glycerin previously mixed with eight fluid ounces of water. After this has disappeared from the surface, continue percolation with water to make the liquid measure sixteen fluid ounces, and after removing this, continue the process till three fluid ounces more of percolate have been obtained. Add the sugar to the reserved portion, and agitate repeatedly. Then pour off the concentrated syrup, and by means of the second percolate and sufficient water (to make the finished product measure thirty-two fluid ounces,) dissolve what sugar has not been taken up previously. As will be observed the amount of sugar is less than that of the pharmacopœia, warranted by the presence of glycerin, it not only adding to its sweetness, and preserving properties, but adding to a great extent the bitterness of the drug to the preparation. Thus made, the syrup contains no greater per cent. of hydrocyanic acid, yet it exhibits a decidedly "stronger" appearance in regard to color, coupled with a taste, although not as pleasant as that of the officinal, yet characteristic of the crude drug in a marked degree

A very curious phenomena may here be mentioned for which the writer is unable to offer an explanation. On one occasion, while preparing this syrup, the first two or three fluid ounces that passed from the percolator were observed to be in good order, the apparatus was

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accordingly left to itself, but lo! when examined after some time, about eight ounces of percolate were found in the receiver, looking turbid and muddy, as though some resinous substance had been precipitated. No sediment would form on standing, nor did simple filtration avail, therefore, as a last resort, some filtering paper, in shreds were added, the mixture shaken a number of times and finally thrown on a new filter. The result proved quite satisfactory, and what slight turbidness remained was entirely removed after dissolving the sugar.

February, 1874.

BALSAM OF SULPHUR.

(*Ol. Lini. Sulphuratum.*)

BY HENRY KERBER.

Balsam of Sulphur, though not officinal in our Pharmacopœia for a number of years, is still used in large quantities, especially in the country and in the manufacture of Harlem Oil. It is really a blessing to Pharmacists that this preparation has been made unofficinal; for, among all the preparations, we can hardly think of one, with a more disgusting odor than that of Balsam of Sulphur; and whoever has made it once will never forget this odor, but will think of it for years with a horror of its manipulation.

For the preparation of this balsam one gallon Raw Linseed Oil and one quart of Malaga Olive Oil are heated in an iron or brass kettle, holding three or four times the quantity of the oils used, over a charcoal furnace, at the temperature of about 300° Fahr. or near the boiling point, which temperature is indicated by the peculiar odor of the vapors arising from the decomposition of the oils; then adding two pounds of dry flour of sulphur, in small portions, say ½ oz. from time to time, constantly stirring with a wooden spatula until portion after portion is dissolved.

As the vapors are inflamable, care should be taken to have a tight lid, or a few wet towels at hand to extinguish the flames if necessary. At first the oils retain their yellowish color, but after three-fourths of the sulphur has been used the mixture turns darker. The sulphur dissolves easily in the oils, but if the temperature has not been raised to 480° Fahr. will partly separate from the oils, after cooling, in the form of a crystalline powder, the balsam remaining liquid and dissolving incompletely in oil of Turpentine.

If the oils are heated above this temperature, not necessarily to the boiling point, (600° Fahr.) the sulphur will become amorphous or go into the Gamma Modification and will remain there perfectly dissolved.

A seething is only to be feared after three-fourths of the sulphur has been used, and when by stirring it can be felt that the oils are getting thick at the bottom of the kettle. It should then be taken off the furnace, the remainder of the sulphur gradually added and stirred diligently.

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Another vessel should be at hand so that if it should foam over the balsam may be caught.

Having all the sulphur in, the critical moment is at hand. The reaction upon the oils, which have not only dissolved the sulphur, but have also entered into a chemical combination with it, then begins and generates such a heat that a seething, and if the kettle be on the furnace too long a foaming over of the substance takes place.

Letting it quietly run into the other vessel until the reaction is over, a gelatinous mass will be found on cooling, which should be mixed with an equal quantity of Raw Linseed Oil, and again heated until it has dissolved. Then strain through a sieve. This on cooling forms an empyreumatic, odoriferous, honey-like fluid; which upon being mixed with Oil of Turpentine forms a clear liquid.

Harlem Oil is simply a mixture of one part Balsam of Sulphur with three parts of Oil of Turpentine. It is used internally in diseases of the kidneys, chronic catarrh, pulmonary complaints, and generally in all complaints where Oil of Turpentine is indicated. On account of its acrid taste and disgusting odor it should only be used for beasts and not for mankind.

"DIAMOND" POWDER.

BY CARL LINKS.

There are two varieties of this article in the market, one of which ought to be discountenanced by the trade.

We refer to the variety which consists of finely divided glass, the kind most commonly met with at present.

It is made by blowing glass as thinly as possible, then fracturing the bulbs, and pulverizing and sifting the fragments.

In Europe where most of this "diamond" powder is manufactured, the workman when pulverizing makes use of a special sort of aspirator covering the mouth and nostrils, the form suggested by Prof. Tyndall and improved by Barton, being that most highly esteemed. If such caution is requisite in the preparation of this article is it probably a safe substance to be sifted upon the chignons, curls, and dresses of ball room belles, and then in the whirl of the giddy dance to be disseminated through an atmosphere which is rarely the purest and healthiest ?

There is probably no substance not an active poison, which, when in a finely divided state, is more injurious to the lungs and air passages than is glass. Disease and even death are caused by it when thus inhaled. It is but a few weeks ago that a death occurred in Iowa from this cause.

The other variety of "Diamond" Powder is an inert mineral substance, without sharp, cutting edges. and much resembles Talc, but has a higher luster. Of the two varieties this is much to be preferred as, besides being probably no more injurious when inhaled than flour, or any similar substance, does not cut and tear the hair on being combed out. The two varieties may be readily distinguished by taking a small portion in the palm of the hand, rubbing it with the finger, or,

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still better, by throwing a portion on the coals of a brightly burning fire. The glass variety at once melts, whereas the other remains without change at the highest temperature.

ON THE DEPLORABLE CONDITION OF PHARMACY, ITS CAUSES AND ITS REMEDIES.

BY A. G. F. STREIT, PH. D.

In the February number of this journal an able and well written article made its appearance, entitled, "On laws and regulations designed to elevate the drug business." This well defined article contains valuable truths. It shows that its author, Mr. Chas. C. Fredigke, has studied these matters well, and has a profound knowledge of the evils of pharmacy, as well as its radical remedies. A further criticism I do consequently not consider necessary while speaking for itself and sufficiently recommending the writer as a worthy member of our profession.

My present article will treat of the above subject and is designed to add more to the valuable truths of the former.

In the abstract of my annual report as secretary of the St. Clair Pharmaceutical Association of Southern Illinois, which was published in the February number of the Am. Journ. of Pharm., I have already given a synopsis of the causes producing the sad degradation of pharmacy, and also mentioned some of the ways and means through which our profession may be brought back again to its original esteemed standing where it ought to belong.

The evils causing this sad condition, attacking the life, vitality and even the future existence of our profession, are so numerous and of such an inveterate nature, that it will require an herculean strength to abolish them entirely. Wherever we may give our professional eyes a rest we cannot fail to see them. We may travel from one city to another, from one small country town to another perceiving totally new evils, evils of which we not only have not dreamed of, but which we would think to be utterly impossible to exist and flourish. Nevertheless they are existing and if we go still further in our inquiry, we find ourselves introduced into a labyrinth, out of which we see no hope of delivery.

Here we perceive a lack of scientific self-respect (professional honor and dignity), there a lack of morality, again a lack of knowledge of professional ethics, want of primary as well as pharmaceutical school education, total nonchalance towards the welfare and development of pharmacy, commercial jealousy and envy, further the customs and politics of dramshop keepers and shysters, selling medicines and poisons at any price if only business is made. In short we must necessarily perceive that the present system of pharmacy is rotten through and through, from the top to the bottom, and consequently all the laws enacted up to this time did not effect a radical cure of the evils existing, but proved to be merely palliative remedies. As long as reform does not begin from the inside, all laws and regulations

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enacted by State authorities will be of but little benefit, and only cover the evils mentioned above. Good clothes furnished to a worthless man, will never cover his dirty character or his deficiency in education.

Here some may probably argue, that a pharmaceutical law is better than none at all, and will improve the status of the profession to some extent. To such an argument I will answer and ask: can you satisfy the want of a hungry man by a small slice of bread? will it not excite his appetite instead of satisfying it? Is this small slice of bread a radical cure for his hunger? Mr. Fredigke says in his article, and he is perfectly right, that many articles have been published through the pharmaceutical press from time to time, by reading which we cannot fail to see that they emanated from the brains of presidents of boards of health or commissioners of public safety, rather than the quills of druggists. He might just as well have also added, that many if not all of the pharmaceutical laws now existing, have been enacted through the aid of members of legislative bodies, having as much an idea of the deplorable condition of pharmacy, its necessary remedies and reform as a cat has of a dog's tail.

Such representatives should remember and also know themselves, that such laws can only be made and enacted through the aid of the profession itself, shall they ever benefit to any extent the present status of pharmacy. They should first ascertain the sentiments of the existing pharmaceutical bodies, they being the only true representatives of the profession, as to whether such proposed laws can practically be executed or not, before using their power to enact them. But why should our profession be asked to sanction a law and express its sentiments? We make the laws as we want them and the pharmacists can see to it how they can execute them! This tyrannical law making on the part of the legislative bodies is worse than no law at all. What is the consequence of this? The certain consequence of this is that the laws are not only not executed, but become the laughing stock of the better class of citizens and will remain dead letters.

If I had sufficient time to give a history of pharmacy of this country from its earliest establishment up to this day, it could easily be shown how it was possible that such evils crept into the profession, but as this history is connected with the history of emigration it will not be necessary to specify it.

The insufficient number of pharmaceutical establishments, and also scientifically educated pharmacists, before and at the commencement of the nineteenth century, the large increase of population after the establishment of the present republican form of government, did consequently not cover the medical wants and necessities of the people. This produced the erroneous idea among a large majority of so-called half educated people, and even among such without education, to consider pharmacy a well paying commercial business. They entered a profession of which they did know that they were not qualified to fulfill the duties connected with it, and of which they also know that they wronged and outraged it. So they erected so called poison shops, and commenced to sell medicines and poisons, without regard to the

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moral and sanitary consequences, only for the sake of money making.

The introduction of such a class of people into our profession, was not only not prohibited by the government of the states, but was gladly seen and even sanctioned. Why should the government prohibit such outrages on the profession? There is free trade throughout the Union. What does the government care for the people? The people are the government! What does it care that thousands of its citizens die under the hands of unscrupulous medical and pharmaceutical quacks! It does not concern them, for it is the almighty dollar which is stronger than justice and humanity. Why should the government prevent such undertakings as long as it receives heavy tax and revenue? I will ask the people, will you shut your eyes to the permanence of such a condition of medicine and pharmacy, professions which have your lives daily in their hands? Do you consider your sanitary welfare less valuable than those few dollars, which probably go to the state treasury? These are all fair questions, and as a man I shall not refrain from expressing my views.

That the state governments are held responsible for the future consequences of the permanence of this most injurious medical and pharmaceutieal malpractice, allowing and encouraging every blacksmith, carpenter or porter in a wholesale drug store to jump into the medical and pharmaceutical profession, as soon as he gets tired of his original trade, is a matter of common sense. Our profession is really so deeply sunken, that it ought to be the holy duty of every member thereof to arise from his lethargy. If there is no hope to save it from its utter degradation and destruction, if there are no ways nor means on hand to change this status, then let us quit so ungrateful a business, for which the people have not the least regard. In many places the profession is so far down that it has become utterly impossible for the scientifically educated pharmacist to make even an honest living. He is steadily injured by mean and cowardly tricks on the part of his opponent. That such is the case no one of us can deny. Such deplorable circumstances render it almost impossible to keep well educated pharmacists in the profession. It makes it also almost impossible to engage well educated apprentices of good families. Why? Because the hard sacrificial study and labor of an apprenticeship of four years is not sufficiently recompensed in the future. I have known many able and well educated young men, (pharmacists,) having been in our profession for five years, and were at last compelled to leave it on account of the sad experience they made, that they only did waste their precious time of life in a nonpaying business. They did not even earn enough to keep up an honest and professional living. The apothecary ought to earn twice as much as he does now, and his clerk ought to receive a much larger salary than he gets at present.

Let us consider for instance the apprenticeship of a banker, his social life and standing and his future expectations and compare it with the apprenticeship of a pharmacist, his hard labor and study during four years, from daybreak almost up to midnight, and sometimes during the night, his social life and standing and his future expectations and hopes. What a difference! The life of a pharmacist is one of

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steady self-sacrifice, study and responsibility, a life totally devoted to the welfare of suffering mankind, and how is it rewarded? Has it received up to the present time sufficient recompensation? Never. The people have no idea of all this, they have become deaf and blind. Who produced such a condition? It is the profession itself, which was careless in guarding and preserving its ancient honors and dignity, by permitting it to become an ordinary commercial trade and the introduction of professional quackery. I could also write a chapter on this subject alone, but I do not think that it would turn out to glorify the profession in the eyes of the people.

The jesuitical maxim, that the purpose sanctions the means, has obtained a strong foot-hold in the medical and pharmaceutical professions. The anxious and most abominable chase after direct commercial and pecuniary profit is undoubtedly a most dangerous enemy, which has thus far conspired against the welfare, interest and existence of pharmacy. I do not mean to say that pharmacy should not have commercial and pecuniary points in view, it certainly must have; but I do mean to say that this commercial and pecuniary object is a necessary attribute, (an attribute per se,) and should rather be covered by the scientific part of pharmacy, concealed from the eyes of the people.

Another evil, sanctioned by the government of the United States for the sake of filling its treasury, endangering the sanitary welfare of the public, is the patent medicine system and trade. Unfortunately this system is also sanctioned and even encouraged by a large majority of the profession. They are so unscrupulous as to recommend these medicines to the people, and introduce them into the market, although they should know well enough that they not only injure themselves, but also outrage the profession. Through such a practice the people are actually forced to think that the apothecary is not able enough to prepare medicines himself! and therefore rather buy patent concerns. Pharmacy is a purely scientific occupation, and those who have or may still yet degrade it, by such an infernal commercial practice, sell their professional honor and dignity for the sake of a few dollars.

The practice of pharmacy should be made an exclusive right to those only who are fully qualified. The state does not only protect the profession by prohibiting medical and pharmaceutical quackery, but also the sanitary welfare of the people at large.

I consider it to be therefore the duty of the state government to take medical and pharmaceutical education in its own hands. It should assist those colleges now in existence by liberal donations and should also erect new ones.

The state assumes the right to take public education in hand, erecting asylums for the deaf and blind, normal schools, agricultural colleges and other institutions of a scientific character, consequently the state is also obliged to erect medical and pharmaceutical colleges, and it is its duty to provide also for this class of education. No state has a right to enact restrictive laws, concerning the examination of pharmacists, having been in the profession many years previous to the enactment of a pharmacal law. The government has no right to demand a full and sufficient pharmaceutical education from the mem-

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bers of the profession without providing first for the ways and means by which it may be received. The few pharmaceutical colleges now existing, chiefly in the large cities of this country, have been mostly sustained by voluntary private contributions of well-minded members of the profession, thus having heavily taxed and taxing yet those members for the direct benefit of the people!

I will now mention four ways necessary to be adopted in order to effect a thorough reform of pharmacy, and which will also prove to be radical remedies for the evils causing this deplorable condition of the profession.

1. The enactment of a law by the legislatures of the states, ordering the erection of pharmaceutical colleges and providing for means to sustain them.

2. The enactment of a law, creating a state-pharmaceutical board, composed of well educated and practical pharmacists and professors of existing pharmaceutical colleges, (physicians especially to be excluded,) appointing the same as guardians of the colleges also, and giving them full power to act as examining commission for the state, and to pass the necessary laws and regulations, such as concerning the sale of poisons, professional ethics, &c.

3. A law providing for the future, a thorough pharmaceutical education of all apothecaries, before they are entitled to practice as such.

4. The organization of pharmaceutical bodies in all the states. This I consider necessary in order to invigorate and animate the sunken scientific and social spirit among all engaged in it, and to assist the state pharmaceutical board in all its undertakings.

These I consider the chief radical remedies, able to produce a total reform.

Let us therefore use our power and influence to get laws of the aforesaid character enacted. But in order to accomplish all this, the most absolute union of all the pharmacists is undoudtedly necessary. United we stand, divided we must fall. Hate, envy, commercial and scientific jealousy among the members should never occur, since to these may be attributed the cause of production of the other evils, which have endangered the scientific, social and commercial standing of pharmacy, and have led to its present deep degradation, ending in making the profession the mere laughing stock of the public.

Let us therefore be all united by the common ties of our science and art, and struggle with our utmost energy for the elevation of our sunken profession. Let us cheerfully sacrifice whatever is possible for human nature, and stick and stand to each other like men of intelligence and science, knowing only one kind of rivalry, which is how each one of us may best serve and benefit pharmacy. As long as we stoically adhere to our present nonchalence, it will be utterly impossible to reform the low status of the profession. Let us also be careful in the selection of material for apprenticeship.

Thus far concerning the deplorable condition of pharmacy and its radical remedies. Much more could be discussed, but the field is so ge that it is impossible to go over it at one time.

May we all labor united for our cause, and may we be successful

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in all enterprises. Finally let us arise from our lethargy by discussing this subject more closely, so that the sunken professional spirit and honor be called again to its proper place. And may peace, harmony and good will prevail among the members.

Let our motto be "Onward to Victory."

Finally, I wish to tender to Mr. Chas. C. Fredigke, my profound respects and sincere regards for having commenced the discussion of this important subject and having openly declared his sentiments and views.

Belleville, Ills., Feb. 20, 1874.

COLLATED PRATICAL RECEIPTS.

AQUA CRYSTALLINA—*Crystal Water.*

Take of	Bitartrate Potassa, - - -	10 parts.
	Sugar - - - - -	40 "
	and dissolve in Distilled Water - -	600 "
	filter.	

This is a pleasant beverage in febrile diseases.

BARASKOPIC LIQUID.

Take of	Muriate Ammonia - - -	10 parts.
	Nitrate Potassa - - - -	10 "
	Gum Camphor - - - - -	50 "
	Alcohol 50 per cent. - - -	160 "

Used for filling those Weather-glasses called Baroskops.

SYRUPUS ANTIASTHINATICUS.

Take of Syrup of Morphia, Syrup of Chloroform, equal parts. Dose: one tablespoonful when necessary.

NOTE :—*Syrup of Chloroform* is prepared in the following manner:

Take of	Chloroform - - - - -	5 drops.
	Alcohol - - - - - -	30 "
	Simple Syrup - - - - -	1 ounce.
	and mix.	

Syrup of Morphia contains one grain of Sulphate of Morphia in 4 ounces simple syrup.

TINCTURA RHEI AQUOSA.

Take of	Fluid Extract Rhubarb - - - -	1 ounce.
	Carbonate Potassa - - - - -	2 drams.
	Cinnamon Water - - - - -	2 ounces.
	Distilled " - - - - -	5 "
	mix and filter.	

This is very often prescribed by German physicians, and as many German apothecaries have difficulty in keeping this tincture for a length of time when made according to their Pharmacopœia, they will find this formula an excellent one.

PARAFFIN, COSMOLINE AND VASELINE.

BY A. W. MILLER, M. D., PH. D.

(Read at the Pharmaceutical Meeting of the Philadelphia College of Pharmacy.

In the course of my recent inquiries concerning cosmoline,* I as-

* See January number Pharmacist, page 20.

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certained incidentally that the manufacture and purification of paraffin is carried on in quite an extensive manner in our city. It occured to me therefore that a few notes on this subject might prove to be acceptable.

The establishments engaged in this industry are mostly situated on the Eastern banks of the Schuylkill, in the neighborhood of Gray's Ferry Arsenal. The process begins by subjecting the so-called residuum of the coal oil refiners to distillation in large stills, made of five-eights inch boiler iron, having a capacity of about 1500 to 2500 gallons. Direct heat is applied immediately beneath the stills, the bottoms of which toward the end of the process reach a white heat. The distillate is condensed in a system of iron pipes, which are contained in large wooden tanks. Distillation begins at 220°, and is terminated at about 570°. The product is a thick, unctuous mass at ordinary temperatures, but it liquefies at about 100°, or a little over. It has a peculiar iridescent color and the characteristic odor of petroleum. The residue of the distillation is a hard, porous, black mass, which is free from odor and presents a close analogy to the ordinary coke of the gas works. In the yards referred to, it is in fact called coke, and is used as fuel to heat the stills.

The distillate, which has thus been obtained, is next treated with from four to five per centum of sulphuric acid, to *kill the green*, as it is termed by the workmen. After the removal of the acid by carbonate of sodium, the oily mass is introduced into bags, made of material called duck, each of which holds about three or four gallons. A number of these are then placed horizontally in an ordinary screw press, being superimposed on each other and separated by intervening boards. During the summer, it is necessary to use ice in order to lower the temperature and prevent too much loss of paraffin.

The oil expressed during this process has the gravity of 25°; it is known as heavy paraffin oil, and is an excellent lubricator for cylinders. It can be readily deodorized and also freed from unpleasant taste, so that it may represent the softer variety of the so-called cosmoline.

The crude paraffin, when taken from the presses, is melted and run into moulds. It is now of a light yellowish or straw color, rather soft, and still strongly redolent of petroleum. In this state it is sold to the refiners, who purify it, in order to adapt it to the multitudinous purposes to which modern industry applies this valuable inheritance of prehistoric ages.

The refiners subject the crude article, which they designate as *wax*, to powerful hydraulic pressure, and thus obtain therefrom a second variety of paraffin oil of about 28° gravity. This is also used almost exclusively as a lubricator. The residue is further purified by treating it with a variety of gasolin or benzin of definite density, which is specially prepared for this purpose. Steam is also called into requisition in order to completely deodorize the product.

Two varieties of pure, white paraffin are manufactured, namely, the ordinary hard article having an apparently crystalline structure, and another having a softer and more gelatinous consistence, which is

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termed ***gum stock***, and is chiefly consumed for chewing-gum. Some of the refiners consider these two products as separate and distinct bodies, and state that they cannot convert either of them into the other. One single refining establishment in this city is reported to find a market for an average production of these substances to the extent of 10,000 lbs. per month.

Among the important applications of paraffin in our neighborhood may be enumerated its use for laundry purposes; when added to starch, it imparts to it an additional lustre in the same manner as spermaceti or white wax. It has been found to be an effective preservative of wood, and large quantities are consumed in this industry. Chewing gum, as has been already stated, is the softer variety of paraffin; although this is apparantly a very trivial and non-important article, it is in reality sold in enormous amounts by many of the wholesale confectioners. The manufacturers of friction matches are heavy purchasers of paraffin, which they use for impregnating the sticks, so that they will more readily ignite, and burn with greater uniformity. Of late, paraffin is also beginning to be used extensively for the purpose of sizing various textile fabrics. Paraffin or ozokerite candles are well known, and they are confidently asserted to produce a finer light than any other variety. Confectioners also use paraffin to impart a gloss or lustre to some of their bon-bons, such as cream chocolate drops and others.

In Europe, paraffin has in addition been used for water-proofing various woven goods, for coating the interior of wine and beer barrels, for the preservation of fresco paintings, for the purpose of saturating cork and paper, as a sizing for leather and small articles turned from wood and bone, as a preservative of fruits and for many other similar applications.

Returning to my remarks on cosmoline at the last meeting, I would state that I have since then succeeded in obtaining several petroleum products, which furnish a more satisfactory result than the mixture of neutral oil and crystallized paraffin. The defect of this preparation is that it cannot be readily deodorized, and that it is of a somewhat granular consistence, instead of being perfectly smooth and homogeneous like cosmoline. I present herewith a sample of very heavy, gelatinous paraffin oil, of which I have good reasons for believing to be the identical source from which at least one variety of cosmoline is manufactured.

In devising a process for the purification of this oil, I endeavored to imitate the method by the action of steam, which was alluded to in my former paper. About one ounce of the oil was therefore placed in a shallow dish with a quart of water and boiled for four hours, more water being added from time to time as it evaporated. The oil naturally spread itself in a thin sheet over the surface of the water, so that all the vapor was forced to pass through it, carrying along with it the small remnant of light hydro-carbons, on which the disagreeable odor depends. At the expiration of this time, the oil was found to be tasteless and inodorous. It was then further purified by filtering through prepared animal charcoal, being kept liquid by being placed

near to a hot stove. On a larger scale, a hot water bath would of course be much preferable, particularly as the slightest excess of heat seems to develope a coal oil odor. A portion of the color and all the adhering mechanical impurietes were thus removed. The paraffin ointment, which is so obtained, resembles cosmoline very closely indeed, having a similar color, consistence and melting point, being quite inodorous and perfectly bland to the taste.

The preparation of the animal charcoal consisted in washing it with a five per cent. solution of carbonate of sodium, warming it repeatedly with a large excess of hydrochloric acid, and then percolating with water until the acid was removed. When dried it was found to be reduced to one-fifth of the original weight.

The above process can also be applied to the paraffin oil of 25° gravity, which is obtained in the first expression of the crude distillate. The melting point of this oil may be altered to almost any desirable point, by adding to it some of the gum stock or softer variety of paraffin, which is preferable to the hard on account of remaining homogeneous.

The attention of the last meeting was directed by Mr. Shinn to another similar preparation, euphoniously called *Vaseline*. Although I have so far had an opportunity of examining this "Esssnce of petroleum," I infer from the contents of a letter in my possession, that paraffin ointment may also be safely substituted for it. Mr. Robert A. Cheesebrough, the inventor and patentee of vaseline, advises me as follows: "The article called cosmoline is an infringement of our patents, and its manufacture or *sale* renders the parties making or selling, liable to us for damages." Such being the case, we, as good, law-abiding citizens, are furnished with an additional reason for refusing to dispense cosmoline, and for recommending paraffin ointment in place of it.

I would state that in this connection that I have remitted to the Commissioner of Patents the necessary fee for obtaining a copy of Mr. Cheesebrough's patent. Still, I feel firmly convinced that the assertion contained in an advertisment of vaseline, which was transmitted to me, is literally true, namely, "There is no wonderful ingredient in it known to no one but the proprietor. It is simply—Petroleum."—*American Journal Pharmacy.*

ON CAFFEIN IN COFFEE AND THE PREPARATIONS DERIVED FROM IT.

Prof. *Aubert*, in Rostock, in company with Dr. *Haase*, determined the amount of caffein contained in coffee, which results differed from former trials. To obtain the alkaloid a new process was followed, based upon its ready solubility in chloroform, all other constituents of the bean not being soluble in the latter. The infusion, condensed to the consistence of syrup, was mixed in a beaker with its own volume of chloroform, the glass covered, digested with occassional stirring at a temperature of not quite 60°, the chloroform was then decanted, replaced by a fresh quantity, and the operation repeated till all the caffein was extracted. The chloroform solutions leave the alkaloid mixed with a very aromatic brown matter and with fat, both of which

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may be removed by cold ether, without appreciably dissolving the caffein. The yield amounted to ¾ per cent. of the beans, more than what has thus far been obtained.

On roasting the beans, the authors found that but very little caffein is lost; strongly roasted ones yielded 0,927, those less roasted 0,987 per cent. From beans much roasted, the caffein is more easily extracted by water than from others. Water takes up from the roasted beans at an average 17 to 18 per cent. of extractive matter.

An infusion made with 16.66 grammes of roasted coffee, yields 0,10 to 0,12 grammes of caffein. The same amount of the alkaloid is obtained from an infusion made out of 5 to 6 grammes of tea leaves.

According to the authors the effect of coffee as a beverage cannot be explained by the caffein alone which it contains, for the latter when employed by itself, differs in its behavior.—*Wittstein's Vierteljahres-schrift.*

PROPERTIES, EXAMINATION, AND TESTING OF SOME OF THE MORE FREQUENTLY OCCURRING FATTY OILS IN THE VEGETABLE KINGDOM.

BY G. GLASSNER.

Translated by Charles M. Rolker.

One of the most difficult tasks of a pharmaceutist and chemist, is the examination of fatty oils. These substances, besides resembling each other very much in appearance and sp. gr., show in a superficial chemical analysis only very slight differences, and leave the examiner frequently in the dark about their true nature, especially in the case of a mixture of such oils. It is often a matter of grave importance, not only for the pharmaceutist, but also for the public in general, to be able to determine the real purity of an oil. The fat oils of the vegetable kingdom are very numerous, and are found inclosed in separate cells in a large number of seeds and fruits. In order to obtain the oil, the cellular membranes are bruised, are exposed to pressure, or treated either with bisulphide of carbon or "gasoline." From these latter substances the oil is liberated by distillation. Such oils which are burnt, are freed from impurities by sulphuric acid; oils which are strongly colored may be bleached under the influence of light and sulphuric or chromic acid. Solution of permanganate of potash are used for the same purpose.

The fatty oils are a mixture of glycerides of fatty acids and oily acids. They are mostly liquid, nearly insoluble in water, and their sp. gr. is below that of water. They readily dissolve in ether, chloroform, and ethereal oils, but with difficulty in alcohol, with the sole exception of castor oil. They possess the property of dissolving sulphur and phosphorus. If fatty oils are brought in contact with a solution of caustic potash and are strongly agitated, a decomposition takes place, in which the fatty and oily acids combine with the alkali, and glycerin is liberated (saponification).

Also other metalic oxides act upon fatty oils, and form with them

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more or less fixed compounds, so-called plasters. Heated to about 500^0 C. they volatilize under decomposition. The acids are liberated, whilst the glycerin, not volatile without decomposition when exposed to the air, gives off vapors of acrolein, which are easily recognized by their pungent odor. Concentrated sulphuric acid decomposes the oils, unites with the base to glycero-sulphuric acid, and sets free the fatty acids. HNO_3, Cl, Br, I form substitution products. Fatty oils produce a stain on paper, which even heat is not able to remove.

Exposed to the air, fatty oils absorb oxygen, and after some time become thick. Based upon these properties, the fatty oils are divided into those which dry out entirely, and those which become smeary and viscid, but never a hard mass, even if present in very thin layers. The former are employed in the preparation of varnishes and paints. The oils which do not dry out, give off, after standing some time, a rancid smell, and have a disagreeable taste. This rancidity is a true fermentation, which is promoted by the presence of putrescible substances, as mucus and albumen, which produce, besides other products, fatty acids also.

I. *Non-drying oils.*

Such oils can only be detected by the elaidine-test. If 4 parts of oil and 2 parts of HNO_3 of 1·20 sp. gr. are mixed in a beaker, and then ½ part of copper-filings are added, N_2O_3 is generated even in the cold, and this effects, without being changed itself, the decomposition of oleic acid ($C_{18}H_{34}O$) into isomeric elaiodic acid, a solid white mass, which fuses at $+45°$ C., and volatilizes without change. In case the nitric acid used is too concentrated, the generation of N_2O_3 takes place in so violent a manner, that the liquid is frequently thrown out of the beaker. The elaidine reaction is produced also, by mixing equal volumes of oil and red fuming nitric acid. The most important of the non-drying oils are:—

1. *Oil of almonds*, sp. gr. = 0·917 to 0.920; it is pressed out of the seed of Amygdalus communis. It has an agreeable mild taste,is clear to light-yellow, and of little consistence. It is nearly inodorous. and solidifies —20°. It is soluble in 60 parts of alcohol, and consists chiefly of olein and margarin.* It has no rancid smell, if pure. Poppy-seed oil, cotton-seed oil, peanut oil, lard oil, sesame oil, and sweet oil are found as adulterations. The elaidine-test produces on pure oil, after 3 or 4 hours, a white or light-yellow color. Red color indicates the presence of sesame oil. If the mass is intermixed with oil drops or streaks, drying oils are present. 5 drops of oil with 1 drop of H_2SO_4 render the color turbid and yellowish, but never dark. 5 vols. of oil agitated with 1 vol. of potash lye of sp. gr. 1·34, produce a white liniment. Equal vols. of fuming nitric acid and oil show, on the place where the two liquids meet, a narrow light green zone, which still remains in the elaidine-mass, but which becomes light bluish-green and extended upwards in the presence of only a little olive oil. 6 parts of oil and 1 part of chloride of lime, triturated with a little water, produce a liniment, out of which the oil soon separates again. (Difference from poppy-seed oil.)

2. *Olive oil*, sp. gr. = 0·910; it is obtained from the Olea Europæa.

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It is pale yellow or colorless, has an agreeable taste and smell. It consists chiefly of margarin* and olein.

A few degrees above zero the margarin* crystallizes out and causes the solidifying of the oil. The olive oil, in using the elaidine-test, becomes, after 2 hours, turbid, and after 6 hours solid and white.† Whilst stirring, this mass crumbles, which in presence of $\frac{1}{20}$ part of poppy-seed oil would become tallow-like, and in presence of $\frac{1}{10}$ of this oil would hardly be more consistent than lard. The solidifying of the elaidine mass commences, if pure oil is used, according to Soubeiran, after 43–59 minutes, in presence of poppy-seed oil after 50 minutes later. If 10 parts of oil are agitated with 1 part of ammonia, a thick liniment results, whilst poppy-seed oil, under the same circumstances, would produce a crumbly mass. Equal volumes of red fuming nitric acid and oil show on their line of contact a beautiful bluish-green ring which is paler on its upper ends. 5 parts of olive oil and one part of potash lye of 1·34 sp. gr. form a liniment of the same color as the oil. Adulterations are: Rape-seed oil, linseed oil, poppy-seed oil, madia oil, and cotton-seed oil.

Drying oils are usually recognized by the elaidine test. Ethereal oils, which are frequently added to the common cotton-seed oil in order to reduce the duty thereon, float unchanged on the elaidine mass. Sesame oil would color these red. Lard oil solidifies at 4°–5° below olive oil. Hanchecorne gives the following reaction to recognize the pure olive oil. When three parts of olive oil are heated in a steam-bath with a mixture of 3 parts of nitric acid of 40° and 1 part of water, the pure oil becomes clearer and of a lighter yellow color. If the oil has an admixture of cotton-seed oil, the color will be red. Whilst Pugliese or Gallipoli oils are yellow and clear, we find that the Calabria oil has often a greenish color, which may have been caused by an addition of dyes, but likewise by copper. Frequently it is difficult to detect the presence of oxide of copper in olive oil. If the quantity of the dissolved oxide of copper is large, lay a polished iron spatula in the oil, add a little hydrochloric acid, and heat the whole on a water-bath from 3 to 4 hours. A part of the oxide of copper may also be separated from the oil by continued boiling with dilute hydrochloric acid. The liquor is then filtered through thin paper, evaporated to dryness, and ignited; the oxide of copper is dissolved out of the ash by hydrochloric acid and precipitated by ammonia, sulphuretted hydrogen, or ferrocyanide of potassium. But all these tests will in no way give a perfectly sure result, as the oxide of copper was combined with organic acids. To give the quantity of copper, the author considers the following method, which was repeatedly used by him, a practical one. A quantity of oil is weighed, and chemically pure hydrochloric acid is added, it is then heated to boiling over a spirit lamp, and chlorate of potash added. The oil decomposes gradually, and forms after some time, a frothy mass, solid in the cold. Filter

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* Palmitin and stearin; margarin is not found in nature.—Eds. Am. Chem.

† According to Knapp a mixture of 1 part of N_2O_4 with 33 parts of olive oil solidifies in 70 minutes, with 50 parts of olive oil in 58 minutes; with 100 parts of olive oil in 130 minutes; with 400 parts of olive oil not at all.

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now, neutralize the acid solution partially, and pass in sulphuretted hydrogen gas, whilst heating gently. The resulting precipitate is collected on a filter. The residue of the first filtration is ignited, the copper dissolved out of the ash and precipitated by sulphuretted hydrogen. Both precipitates of sulphide of copper are then united and determined in the regular quantitative way. It is a little more simple to saponify the olive oil in which copper is suspected with concentrated caustic lye, to decompose the soap by hydrochloric acid, and separate the hydrochloric acid solution by filtering from the oily acids, and to precipitate the copper in the filtrate. But I think this method less reliable than the previous one. Oxide of lead may be dissolved out of the oil by dilute acetic acid, with agitation, and may be precipitated by sulphuric acid.

Rape-seed oil, sp. gr. = 0·910, is obtained by pressure from the seed of brassica napus, brassica campestris, and others. The fresh-pressed oil has a yellow to yellowish-green color, and is pretty thick. Only the oil used for burning is refined by sulphuric acid, and contains therefore no mucus, while it is retained by the salad oil. Rape-seed oil is nearly pure oleine, and gives a smeary plaster when boiled with oxide of lead and water. Pure rape-seed oil gives a white mass, when shaken with $\frac{1}{5}$ vol. potash lye of 1·34; in the elaidine test the oil solidifies after about 5–6 hours. As adulterations have been found: linseed oil, hemp-seed oil, and train oil. When linseed oil is present, the liniment turns greenish with potash lye, and changes to a yellow-brown when heated to boiling. If train oil were present, the color would be red; if hemp-seed oil be present, the liniment will be solid and brown. A very small quantity of train oil may be found by the addition of one drop of sulphuric acid. The drop of acid spreads in the oil at once to thread-like stripes, which run undulating to the bottom, and have first a red, afterwards a black color. Rape-seed oil and hemp-seed oil take a dark-green color, when mixed with equal vols. of sulphuric acid. Even $\frac{1}{1000}$ part of train oil is said to be recognized by the coloring from red to black, when a little syrup of phosphoric acid is added. When 15 drops of rape-seed oil are placed in a porcelain dish and one drop of sulphuric acid is added, a greenish-blue halo, with brown stripes, appears around the acid. When mixed with an equal volume of fuming nitric acid, a brownish-red zone forms at the point of contact, which shades off in greenish hue towards the bottom. If after refining, sulphuric acid is still contained in the oil, it can be detected in the following way. Equal volumes of chemically pure concentrated soda solution and oil are well shaken together, a little NaCl solution is added and again well shaken. When the oil is free of acids, it rises after a few minutes and collects at the top. But when it contains acids, a white emulsion forms at once, which is more or less consistent, according to the amount of acid it contains. But the NaCl solution must be entirely free of caustic lye, because the latter will form an emulsion also with oil, free of acids.

s. *Sesame oil*, sp. gr. = 0·923, is gained from the seed of Sesamum orientale; it is a light to brownish-yellow oil, which does not smell disagreeably; it solidifies at—50°, and is composed nearly entirely of

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oleine. Boiled with oxide of lead and water, it gives a smeary plaster. When equal volumes of sesame oil and a cooled mixture of concentrated sulphuric and nitric acids are brought together, a bluish-green middle zone ensues. By adding a few drops of bisulphide of carbon, the coloring is of a more beautiful green and remains longer. In the elaidine test the oil solidified and becomes of a yellowish or red color. How to detect sesame oil when mixed with other oils, has been shown before, at the respective places.

5. *Palm oil* is obtained from the green peels af Elaïs guyanensis. It fuses at $+27°$, and consists principally of so-called margarin [palmitin—EDS. AM. CHEM.] and oleine. It becomes easily rancid, and is then less fusible. By heating under admission of air, it can be decolorized. With caustic potash it gives a yellow soap.

6. *Lard oil* (so called) can be manufactured, according to Ihlo, by heating 32 parts of rape-seed oil with one part of fine pulverized potato starch in a sand-bath until a sweet smell comes forth. After cooling, settling, and filtering, a clear, yellowish, agreeably smelling, and tasting oil is obtained, which solidfies at $+6°$ to 8°C., and which is used in the manufacture of perfumed oils.

II. *Drying oils.*

When these remain for a long time in contact with the air, they absorb oxygen, become constantly thicker, and finally dry out entirely. Contrary to the non-drying oils, this oxidation is retarded by presence of mucus or albumen; therefore, these oils dry the quicker, the more such substances are removed. The drying is accelerated by the addition of metalic oxides, such as oxide of zinc or lead. These oils are used for varnishes and paints. Through the influence of nitrous acid on drying oils, suberic and pimelic acids are formed, amongst others. But the elaidine reaction does not take place, as the linoleic acid is not solidified by nitrous acid. The composition of this acid, which occurs likewise in the poppy seed, is $C_{16}H_{28}O_2$. All drying oils, when boiled with oxide of lead and water, give smeary plasters, which dry out after some time.

1. *Linseed oil.* sp. gr. = 0·930, is obtained from the seed of linum usitatissimum. It is greenish-yellow, has a peculiar smell and taste, is of a syrupy consistence, and solidifies only at—16° to—20°. When mixed with nitrous acid, its color is red. If equal volumes of oil and red fuming nitric acid are mixed in a beaker, the mixture takes first a green color and then a red one towards the upper part. Frequently the reaction is so violent that the liquid spurts out of the beaker. If five volumes of oil are mixed with one volume of potash lye of 1·34, and then strongly agitated, a greenish-yellow liniment is formed which becomes fluid and yellowish-brown after boiling. Hemp-seed oil would form under the same circumstances a brown solid mass. If equal volumes of hemp-seed oil are mixed, a greenish coloration results.

2. *Poppy-seed oil*, sp. gr. =0·913 to 0·924, is procured from the seed of Papaver somniferum. It is yellowish-white, and if old perfectly white, and has an agreeable taste. It is a thin liquid, and if in the bleached state (when it is rancid and in an easily drying condi-

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tion) may be used in oil painting. The poppy-seed oil solidifies at —18°. Brought in contact with an equal volume of red fuming nitric acid, a dark green middle zone is formed, changing into pink in its upper layers. 84 volumes of poppy-seed oil, triturated with one part of good chloride of lime, furnish a liniment, out of which is very difficult to separate the oil. (Difference from oil of almonds.) When 10 parts of poppy-seed oil are mixed with from 2 to 3 parts of sulphuric acid, a pure yellow coloration of the liquid ensues in the beginning, and after stirring some time it changes to brown olive-green, producing at the same time an increase of temperature. Maumené has given a detailed explanation of this phenomenon. If 50 grms. of oil are agitated with 10 c. c. sulphuric acid of 66° B., the temperature increases in case of a mixture of poppy-seed oil and olive oil from 70° to 80°, in case of pure olive oil only about 42°. elaidine test does not influence the poppy-seed oil, and occurring adulterations with non-drying oils may in this way be easily detected.

3. *Castor oil.* sp. gr. 0·950 to 0·970, is produced from the seed of Ricinus communis. The castor oil contains two fatty acids, the ricinostearic acid and ricinoleic acid, together with oxide of glyceryl and a resin. Œnanthol results from the dry distillation, and during the oxidation by HNO_3, œnanthylic acid is formed. When heated with hydrate of potash, caprylic alcohol is formed, and sebacic acid. If before the pressing the peels are removed from the seed, the resulting oil is a colorless one; if the seeds are roasted, a yellow oil is obtained. The American oil has a larger percentage of ricinostearin than the West Indian and French oil has, and becomes at a comparatively low temperature thick and tnrbid. The oil is of a syrupy consistency, colorless or slight yellow, and transparent. Its taste is mild in the beginning, afterwards a little sharp. Exposed to the air it becomes rancid and dies out. It solidifies at—18°, and readily dissolves in absolute alcohol. If three parts of castor oil are dissolved in an equal volume of bisulphide of carbon, and two parts of crude sulphuric acid are slowly added, the castor oil separates as a slimy, reddish-white mass, which is insoluble, even in an excess of bisulphide of carbon, unless washed. In the elaidine test, this oil becomes first of a whitish color, and solidifies after 6—8 hours to a wax-like mass (ricinoelaidin). As adulterations, we find sesame oil and sunflower oil. In this case, the oil in the elaidine test is yellowish, reddish, or red in the beginning, and afterwards a soft, yellow, or brown mass. Pure oil is perfectly soluble at +30°, -35°, in an equal volume of alcohol, but as soon as it contains more than 5 percent. of other oil, the solution is turbid.

The following scheme gives the tests which are most in use. The reactions enumerated will take place with exactness only in the presence of non-adulterated oils; but in most cases, when the mixture is not too complicated, will be sufficient to determine an oil. The potash lye which has to be used must be prepared from chemically pure potash. The red fumng nitric acid used by the writer of this had a sp. gr, of 1·40. To determine the sp. gr., the oleometers, made by the academical optican Desaga in Heidelberg, may be used.—***Archive fuer Pharmacie. American Chemist.***

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Scheme for the Analysis of Fatty Oils at Ordinary Temperatures.

5 vols. oil mixed with 1 vol. potash lye of 1·34 and strongly agitated. The mass is—	Snow white. Oil of almonds, very good rape-seed oil, bleached olive oil.	Yellowish. Poppy-seed oil, olive oil, rape-seed oil, sesame oil.	Greenish. Linseed oil, hemp-seed oil, oils containing Cu, and artificial dyes.	Pink color. Refined rape-seed oil.	Brown and stiff. Hemp-seed oil.	Yellowish-brown and fluid. Linseed oil.	Red. Train oil.
Mix in a beaker carefully equal vol. of oil and red fuming nitric acid. A middle zone forms on point of contact. This is—	Narrow and light green; oil becomes flocculent and opaque. Oil of almonds.	Dark green; pink above. Poppy-seed oil.	Broad and beautiful light blue-green. Olive oil.	Brown-red. Cod-liver oil.	Green, red above. Linseed oil.	Brown-red, greenish below. Rape-seed oil.	The oil colors throughout red, after some time. Linseed oil.
Mix in a beaker the oil with concentrated sulphuric acid. Layers where oil and acid meet are colored—	10 drops of oil, 2 of concentrated sulphuric acid.			Equal volumes oil and acid.			
				Without bisulphide of carbon.			With Bisulphide of Carbon
	Beautiful green, with brown stripes. Rape seed oil.	Yellow; after agitating, brown and olive-green. Poppy-seed oil, madia oil.	Red, soon changing to black, stripes undulating through the liquid. Train oil.	When agitated, fine dark green. Rape seed oil.	Green. Linseed oil, Hempseed oil.	Red. Train oil.	With 20 times its vol. CS_2, splendid violet, quickly changing to brown coloration. Train oil.
In the elaidine test the oil mass is—	Solified, crumbling, and white. Olive oil, oil of almonds, bleached rape-seed oil.	Solidified, crumbling, and yellowish. Rape-seed oil.	Solidified and red. Sesame oil.	Wax like and white. Castor oil.	The elaidine mass shows oil drops *and stripes*. Oil mixtures containing drying oils.	Unchanged. Linseed oil, Poppy-seed oil, nut oil.	Ethereal oils, added to the olive to correct the smell, float on the elaidine.
In boiling with water and oxide of lead a plaster is formed, the consistence of which is—	Solid. Olive oil.	Smeary. Rape-seed oil, oil of almonds, sesame oil.	Smeary, but drying after some time. Drying oils.				
Solubility of 1 part oil in alcohol:	1 : 1 Castor Oil.	1 : 25 Poppy-seed oil.	1 : 30 Hemp-seed oil.	1 : 40 Linseed oil.	1 : 60 Oil of almonds.		
Specific gravity of oils is—	0·913 Poppy-seed oil, and oil of brass. nap.	0·914. Oil of almonds, oil of brass. camp.	0·918 Olive oil.	0·923 Sesame oil.	0·924 Sunflower oil.	0·950—0·970 Castor oil.	0·930 Linseed oil.
No. of degrees Celsius at which the oils change from solid to liquid state:	—27° Hemp-seed oil.	—18° Castor oil. +2°· 5+6° to +8° Olive oil, lard oil.	—16° to —20° Linseed oil. —20° to —25° Oil of almonds.	—16° Sunflower oil.	—6° Oil of brass. napus.	—40° Oil of brass. camp.	—5° Sesame oil.

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EDITORIAL.

We announce with feelings of grief and personal bereavement the death of our honored friend, Professor William Proctor, Jr., of Philadelphia, who has been struck down in the midst of his duties and usefulness. A long and intimate acquaintance with Professor Proctor led to a profound appreciation of his eminent ability and his many excellent qualities as a man.

The whole pharmacal profession will mourn the loss of one who has been justly regarded as the foremost man in our ranks, and the more immediate field of his labors will long miss his giant efforts in behalf of the beloved profession. But few Americans are likely in this generation to leave so lasting and so enviable a record of results, either considered in relation to practical operations of the laboratory, or to educational advancement. His contributions to the literature of the profession have been numerous, and of very high character, while his long and valuable services as editor of the *American Journal of Pharmacy* placed him in the front rank of pharmacal writers. Warm hearted, generous, sympathising, a friend to all who deserved his help, he endeared himself to thousands by whom his memory will be cherished as a benefactor of his kind, and for many generations to come Mt. Holly, his last resting place, will become the Mecca of parmacal pilgrimage.

The loss of Bringhurst, Parrish and Proctor leaves a void in the pharmacal profession which it is difficult to fill; wholly it never can be; but let us hope that their good example may lead to higher and better aims in the youth of our land. In this example they still live, and their works follow them beyond the grave.

TRANSACTIONS OF PHARMACAL COLLEGES AND SOCIETIES.

CHICAGO COLLEGE OF PHARMACY.

Trustees' meeting held Jan. 20th, 1874. Present: Messrs. Whitfield, Sargent, Ebert, Mill, Buck, Blocki Huyck and Patterson.

Minutes of Trustees' meeting held Dec. 9th, 1873, were read and approved. A communication from the Hon. J. B. Rice, relating to the stamp tax was read. Donations to the library and cabinet were received; from Messrs. Allaire, Woodward & Co., Peoria, Illinois, specimens of Materia Medica; from Messrs. Whitall, Tatum & Co., Philadelphia, a valuable donation of glassware. From the Enterprise Manufacturing Company Philadelphia, one of their superior drug mills. The Secretary was instructed to convey the hearty thanks of the college to the donors. A communication was received from the faculty of the College in relation to the diploma, which was referred to the Committee on Diploma with instructions to procure one without delay. After the transaction of other routine business of minor importance the Board adjourned.

THEO. H. PATTERSON, *Secretary.*

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Trustee's meeting held Feb. 19, 1874. Present, Messrs. Whitfield, Sargent, Buck, Bartlett, Blocki, Ebert and Patterson.

Minutes of Trustee's meeting, held Dec. 20, 1873, were read and approved.

On motion, a vote of thanks was tendered to the Hon. J. B. Rice for the kind interest he has manifested in us, and the Secretary was directed to request him to place the College on the list of educational institutions entitled to public documents.

On motion, the President was appointed a committee to confer with the officers of the Public Library with regard to securing rooms and accommodations for our books and specimens in the library building.

Mr. Ebert presented a petition for membership, signed by D. B. Trimble, M. D. Ballot being spread, he was unanimously elected a member of the college.

On motion the following were appointed a committee to conduct the examination of the candidates for graduation, viz: Patterson, Siddall, Buck, Ebert, Blocki and Wilson.

Some discussion ensued in regard to the examination in Botany, when it was decided to dispense with the written examination.

On motion it was voted that 700 copies of the list of donors, with the catalogue of books and specimens presented by the British Pharmacists, together with the correspondence relating to the same, be published in the PHARMACIST. Motion to adjourn. Adjourned.

THEO. H. PATTERSON, Sec'y.

SPECIAL MEETING OF THE COLLEGE HELD FEB. 19, 1874.

The meeting was called to order by the President, Mr. Thos. Whitfield, who in a few feeling remarks announced tne death of Professor William Proctor, Jr., of the Philadelphia College of Pharmacy, which occurred on the 10th inst.

On motion a committee was appointed to draft resolutions expressive of the sentiments of the college. Messrs. Sargent, Ebert and Trimble were appointed, and subsequently reported as follows:

IN MEMORIAM,

WHEREAS, The members of this college have learned with profound sorrow that Prof. Wm. Proctor, Jr., departed this life on the 10th inst., and

WHEREAS, We, in common with all Pharmacists, mourn the loss of our friend, who has so long maintained the honorable and well deserved title of the "Father of American Pharmacy," and who has in a busy and eminently useful life done so much to enrich the profession in its literature and in its practice, it is therefore

Resolved, That in the death of Prof. Proctor a material loss has been sustained, and the cause of education looses one of its most experienced and ablest champions.

That we deplore the loss of so valuable a life and example to our sister institution and to the whole pharmaceutical body.

That we respectfully offer to the sorrow stricken family our warmest sympathy in their great bereavement, and will cherish with

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them the memory of one who has endeared himself to our hearts as a generous friend, a wise counsellor, and a benefactor of his race.

That we extend to the Philadelphia College of Pharmacy our earnest sympathy in their affliction in the loss of one who has so long and ably filled the position of Professor of Pharmacy and editor of their journal, causing the name of their college to be honored whereever pharmacy is recognized.

That in the death of Prof. Proctor American pharmacists have lost their most honored and ablest leader, a just and noble man, worthy our imitation in all the relations of life.

That as a College of Pharmacy, we do hold his name in respectful memory as the first Professor of Pharmacy in America, as a constant friend to pharmacal organizations, and in an especial manner to our own college.

That a copy of these resolutions be sent to the family of our deceased friend, and to the Philadelphia College of Pharmacy, and that they be published in our proceedings.

E. H. Sargent,
Albert E. Ebert, } Committee.
D. B. Trimble,

Mr. Sargent then offered a notice of an amendment to the By-laws, which was laid over until the next meeting. Motion to adjourn.

Adjourned. Theo. H. Patterson, *Secretary.*

ACTION OF THE STUDENTS OF THE CHICAGO COLLEGE OF PHARMACY.

At the meeting of the students of the Chicago College of Pharmacy, held Monday, Feb. 16, A. D., 1874. The following preamble and resolutions were unanimously adopted:

Whereas, We have learned with unfeigned sorrow of the death of Professor William Proctor, Jr., of the Philadelphia College of Pharmacy, in which he so ably and faithfully filled the position of Professor of Pharmacy, and,

Whereas, The loss of his valuable services to the students, the college, and the profession at large, will be difficult to replace, be it therefore

Resolved, That we, the students of the Chicago College of Pharmacy, tender our sincere sympathy to the students of the Philadelphia College of Pharmacy in the loss of so able a teacher and so true a friend.

Resolved, That we shall ever remember one whose many researches and able efforts in the cause of science and the elevation of the profession, have justly entitled him to be acknowledged the "Father of Pharmacy" in America.

Resolved, That we all unite in regretting the loss of one who has been removed so early from the field of his usefulness.

Resolved, Therefore, that a copy of these resolutions be sent to the family of the deceased, and to the students of the Philadelphia College

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of Pharmacy, class 1873 and 4, and to the PHARMACIST for publication, and that the resolutions be filed in the archives of this college.

GEO. H. ACKERMAN, Chairman.	CHAS. M. FORD,	Committee.
H. A. WARNER, Secretary.	H. W. BUCHMAN,	
	E. L. STAHL, JR.,	
	F. S. SMITH,	
	C. E. HARLAN,	

ACTION OF THE STUDENTS OF THE PHILADELPHIA COLLEGE OF PHARMACY.

A meeting of the students of the Philadelphia College of Pharmacy was held Monday evening, Feb. 14, to take action in regard to the death of the late Professor Proctor. The class was deeply impressed with the loss they had sustained in the death of their valued teacher, whose genial disposition and faithful instruction had endeared him to all who came in contact with him. The following preamble and resolutions were unanimously adopted:

WHEREAS, It has pleased an Allwise Providence to suddenly remove from our midst our worthy and beloved Professor, Wm. Proctor, Jr., who has so faithfully filled the chair of "Pharmacy" in this College, therefore be it

Resolved, That we tender to the afflicted family of the deceased our heartfelt sympathy in their great bereavement.

Resolved, That the students of the College who have listened with so much interest to his able and instructive lectures, and who feel so deeply indepted therefor, shall ever cherish in sacred remembrance his many deeds of kindness and arduous attempts to engraft into them the knowledge of our profession which he so largely possessed.

Resolved, That in the death of our esteemed Professor, who has so suddenly been taken from us in the midst of his duties, we, the students, have suffered an irreparable loss, and the College an able and devoted fellow-member.

Resolved, That we attend the funeral at the residence in a body, and that a committee be appointed to accompany the remains to their final resting place.

Resolved, That this preamble and resolutions be published in the different journals of pharmacy and in two of the city papers, and a copy to be sent to the family of the deceased, and another to the Trustees of the College.

W. L. Harrison, Chairman; H. B. Hutchinson, Geo. C. Leecher, D. Ackerman, Jr., J. T. Seal, Committee.

Fred B. Power, Secretary of the meeting.

MARYLAND COLLEGE OF PHARMACY.

At the regular monthly meeting of the Maryland College of Pharmacy, held Jan. 8th 1874, the following officers were elected for the ensuing year:

First Vice President—Joseph Roberts, Ph. D.
Second Vice President—A. P. Sharp.

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And Messrs. B. Hassencamp and N. Hynson Jennings Members of Examining Board.

The several standing committees were appointed, and a special committee to take into consideration the possibility of building a suitable hall for the college, and to petition the Legislature for aid thereunto.

A special meeting was appointed for Wednesday, 14th inst., to take action on report of committees on revision of by-laws, &c.

On motion adjourned.

J. NEWPORT POTTS, Reporter.

A stated meeting of the Maryland College of Pharmacy was held Feb. 12. Dr. Jno. F. Hancock, President in the chair, who feelingly notified the members in a fitting, well-timed address, of the death of Prof. Wm. Proctor, Jr., of Philadelphia. Further remarks, appropriate and eulogistic of the life and character of the deceased, were made by Dr. A. P. Sharp and Prof. J. Faris Moore, who with Dr. Joseph Roberts, were appointed a committee to prepare resolutions expressive of the regret and loss sustained by Pharmacy in the demise of its most ardent devotee, which were submitted, approved, and ordered spread upon the journal and copies forwarded the family of deceased, and for publication. The same named gentlemen were delegated to represent the college at the funeral.

Donations of "Cosmoline" were received from Messrs. E. F. Houghton & Co., and an improved Drug Mill from Enterprise Manufacturing Company, both of Philadelphia, to whom the Secretary was directed to extend the thanks of the college.

The committee on annual meeting, named March 19th for holding the same. On motion adjourned.

J. NEWPORT POTTS, Reporter.

Baltimore, 497 N. Gay st., Feb. 19, 1874.

THE NEW JERSEY PHARMACEUTICAL ASSOCIATION.

The annual meeting of this society was held in Jersey City.

There was a good attendanee of members from different parts of the State, and various subjects of general interest to the profession were discussed. The practice of paying physicians a percentage on prescriptions was strongly deprecated by the president, James Stratton, of Bordentown, and from the way some of the members winced it was evident the shot went home to them.

An act regulating the sale of poisons was urged, as a great necessity, owing to the loose manner in which it was conducted. There was a fine display of Drugs, Chemicals, Apparatus, &c., from the leading firms in the Eastern cities, and a brilliant reception in the evening with an orchestra accompaniment. James R. Mercien was elected president for the ensuing year.

DRUG CLERKS ASSOCIATION.

A meeting of the Washington Pharmaceutical Association was held Wednesday evening. The President, Mr. George A. Bentley, in the chair. The minutes of the preceding meeting were read and approved.

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Mr. Charles S. Price, the secretary, made his annual report of the condition of its affairs; the Treasurer and Register made their reports also, which exhibited a good condition of the affairs of the Association.

The President read his annual report, reviewing the acts and objects of the organization during the year, and congratulating the members upon the success that had attended their efforts. The original number of ten (10), had now reached upwards of fifty (50), and the finances were in a sound condition, with a surplus of nearly two hundred dollars. Securing a suitable hall for meeting, and the accumulation of a library were recommended. The Society was also congratulated on its firmness in requiring total abstinence from intoxicating drinks on the part of its members and of those applying for membership, as no profession in the world required a cool head and sober judgment more than theirs. A separate financial report of the Register, Mr. George R. Reynolds, showed the receipts during the year to be $276.75; Expenditures, $98.50; Balance on hand, $178.55; and from members, $35.00

The election of officers for the ensuing year was announced. The election was by ballot. Messrs. Martin, and Baldus were appointed tellers, and resulted as follows:—President, Geo. H. Bentley; Vice-President, Robert P. Southall; Secretary, Chas. S. Price; Treasurer, Wm. P. Baldus; Register, Wm. S. Dulin.

Mr. Baldus, chairman of the committee on incorporation, reported a charter in accordance with the act of Congress, which had been legally executed.

Messrs. Cole, Baldus, and Pschiffalls, were elected directors, under the act of incorporation, who with the President and Secretary are *ex officio* members, form the Board of Directors. After the transaction of some routine business the Association adjourned.

C. S. PRICE, *Secretary.*

OBITUARY.

PROF. WM. PROCTOR, JR.

William Proctor, Jr., Vice President and Professor of Theoretical and Practical Pharmacy of the Philadelphia College of Pharmacy, died suddenly of heart disease at about a quarter past 12, Tuesday morning, Feb. 10th, at his residence, 902 Lombard street, Philadelphia, Pa.

Professor Proctor was born in Baltimore May 10th, 1817, came to Philadelphia at the age of 13, and entered the drug store of Mr. Henry M. Zollickoffer, where he remained thirteen years. He graduated at the Philadelphia College of Pharmacy in 1837. The subject of his thesis was "Lobelia Inflata." The results of his investigation were given in a carefully written paper and published in the *American Journal of Pharmacy* for that year. He was elected a member of the Philadelphia College of Pharmacy May 18, 1840, and a member of the Board of Trustees in 1841. In 1843 he opened the drug store on his own account at the southwest corner of Ninth and Lombard, where he continued to carry on business until his death. The

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Chair of Pharmacy was created in 1846, and he was unanimously elected to fill it, and continued to occupy it until 1867, when he resigned and was succeeded by Prof. Maisch. On the death of Prof. Parrish, last year, he was solicited to fill the chair of Pharmacy, thus made vacant, and accepted the position.

Prof. Proctor was an indefatigable worker. While carrying on his drug-store and his course of lectures, he also found time to contribute numerous articles to the *American Journal of Pharmacy*, of which periodical in 1848 he was made assistant editor to Dr. Joseph Carson.

In 1850, July, he became sole editor, and so continued until April, 1871, when he resigned. The mere record of his contributions to the *Journal* during this time, fills nine closely printed columns of the index. In addition to all this, in 1848-9, he edited a revised edition of Mohr and Redwoods Pharmacy ; increasing the bulk of the volume abont one-third, by his contributions relative to American pharmacy, and making it a standard text-book for Pharmacists.

He lectured at the College of Pharmacy Monday evening, returned home apparently in his usual health and spirits, and sat talking with his wife until nearly 12 o'clock, when he retired and was shortly after found to be dead.

His funeral was largely attended, and delegations were present from New York, Baltimore, and New Jersey. He was buried at Mt. Holly, N. J., Monday evening. The class of the college in a body reviewed the remains of their beloved teacher, and followed the funeral to the Market street wharf. The remains bore a natural expression and were surrounded by floral offerings supplied by the students.

He was an honorary member of the Philosophical Society of Philadelphia, Pharmaceutical Society of Great Britain, British Pharmaceutical Conference, Sociedad de Farmacia National, Argentia, Colegio de Farmaceuticas, Madrid, Societe de Pharmacie de Paris, Austrian Apothecaries Society, Maryland College of Pharmacy, College of Pharmacy of the City of New York, etc.,

REVIEWS AND BOOK NOTICES.

Griffith's Universal Formulary. A universal formula containing the methods of preparing and administering officinal and other medicines. The whole adapted to physicians and pharmacists. By R. Eglesfeld Griffith, M. D. Third edition carefully revised and much enlarged by John M. Maisch, Phar. D., Professor of Materia Medica and Botany in the Philadelphia College of Pharmacy. With illustrations. Henry C. Lea, Publisher, Philadelphia, 1874.

This valuable compendium is now before us in a third edition. For many years it has stood the test of practical adaptation to the wants of the druggist and physician as a work for ready reference.

As a mere formulary it has had no equal in the books of this country, while the large amount of other information it contains renders it of constant value to the busy pharmacist and the student of medi-

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cine. The recent change in the pharmacy of Europe and this country gives especial value at this time to a reliable epitome of them all, while many useful preparations that have been discarded from the official standards are here reproduced and made acceptable to the modern student.

The name of Prof. Maisch as the editor of this edition is sufficient evidence of the accuracy and fullness in all its parts, as no one more fully realizes the wants of the apothecary in this direction, or is more capable of meeting them in the very best manner.

We heartily commend this to our readers, whether physician or druggist, as it satisfactorily supplies a needed commentary on all preceeding pharmacopœias and formula books, down to the present moment.

Dunglison's Medical Dictionary. A Dictionary of Medical Science, with accentuation and etymology of the terms, and the French synonyms. By ROBLEY DUNGLISON, M. D., late professor in the Jefferson Medical College of Philadelphia. A new edition enlarged and thoroughly revised by Richard J. Dunglison, M. D., Philadelphia. Henry C. Lea, 1874. 1 vol., 1131 pages. For sale by Jansen, McClurg & Co., Chicago.

We are indebted to the publishers for a copy of the new edition of this very excellent work which has for a period of forty years been the recognized Standard Medical Lexicon of this country.

It is not merely a dictionary of medical terms, although this alone would commend it to the student and practitioner, but in addition to this, it in a large degree furnishes an epitome of the present knowledge of physiology, materia medica, chemistry und other departments of medical teaching. Perhaps no greater praise can be awarded than to say that it fully deserves its title of "Medical Lexicon" as no other work with which we are familiar does. The present edition has been enriched by the addition of over six thousand new subjects and terms not found in previous editions. It is still further improved by a system of accentuation which constitutes it a pronouncing dictionary. We scarcely need to say that this was necessary, and that it ought to be studied by our friends of the medical profession, who have had a curious way of accenting the wrong syllable, in defiance of all authority or rule, in many words.

We know of no single book which is of greater value than this to the student of medicine. In some respects it would be well if its careful study preceeded the reading of other medical works as it would prepare the mind for the reception of knowledge otherwise beyond his reach or understanding.

As an epitome of medical knowledge we would commend it to Pharmacists who may find in its pages nearly all they will have occasion to know of diseases or of the *practice* of medicine. As a book of reference for physicians and pharmacists it is of great value, and we hope it will be largely used. The publisher has in all respects done his work well, and is truly deserving of success for his enterprise and

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discrimination in publishing so many really valuable scientific books.

Pharmacopœia Germanica. The German Pharmacopœia translated by C. L. LOCHMAN, with an appendix explanatory of the French Metrical System, and table of Weights and Measures, etc., Philadelphia. David E. Elder & Co., 430 Market street. Large 12mo., 394 pages, extra muslin, $2.25. Postage prepaid by mail.

It is with much more than ordinary pleasure that we notice this useful addition to the college library; first, because it is needed, and second because it is thoroughly well done. Mr. Lochman has herein conferred a great favor upon American Pharmacists, many of whom are unable to render the Latin of the original, and to many others who perhaps never have seen the original at all.

A careful comparison of the translation with the Latin text shows how honestly and how happily the labor has been performed,—it really leaves nothing to be desired. Being an accurate and full translation, it must be classed as a valuable addition to American Pharmacal literature, bringing the remedies and the processes of the German Pharmacopœia within the reach of every student.

It will also tend to harmonize the preparations, (of the different nations) which nearly resemble each other and lead us one step nearer to what we ought to reach, *a pharmacopœia of all nations.*

The constant interchange of our people with those of Europe renders it important that there should be similitude in certain preparations of universal application. A full knowledge of what each possesses will, sooner than any other agency, lead to uniformity.

In addition to the translation the author has given us a series of indices and tables of great value and convenience.

We hope this book will have a large number of patrons, particularly in the West, where its practical value will be fully appreciated if only it be known. No pharmacist can afford to be without a copy and we earnestly advise such of our readers to obtain one without delay.

We ought to mention that the officinal name of each article is given both in English and German, in addition to the Latin, with all necessary instruction as to the *manner* of the process peculiar to German Pharmacy.

Animal Mechanics; a lecture by S. M. Bradley, Esq., F. R. C. S.; delivered at Manchester, England.

Annual Report on the State of the Finances to the Forty-Third Congress, Dec. 1, 1873, by William Richardson, Secretary of the Treasury, Washington, D. C., 1873. 1 vol., 720 pages.

For want of space several items have been crowded out, which will appear in our next issue.

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The Pharmacist.

Vol. VII. CHICAGO, APRIL, 1874. No. 4.

EXAMINATION OF THE FLUID PREPARATIONS OF CANNABIS INDICÆ.

BY. HENRY W. BUCHMAN.

There exists much diversity of opinion among the Medical and Pharmacal profession regarding the strength of the commercial fluid preparations of Cannabis Indicæ. To what extent this variance in strength exists, I hope to be able to establish by this investigation. The results of my examination will have the tendency to call the atten-tiion of the honorable members of the profession to the fact that the fluid preparations of this valuable remedial agent as found in the market are with but few exceptions deficient in the strength claimed by the labels attached to the receptacles in which these respective factors place their preparations, whence they are to go forth and aid in the relief of suffering humanity. But alas! they are, with but few exceptions, mere representations on the part of the unscrupulous or careless manufacturers; it either being their greed for the "Almighty Dollar," or sheer ignorance or carelessness in placing on the market such comparatively inert productions of so active a drug.

The tincture of Cannabis comprises the list of liquid preparations officinal in the U. S. Pharmacopœia; the same is also true of the British, German, French, Russian, Indian, Swiss, Hamburg and Hanover standards. Yet this preparation is seldom used, the unofficinal Fluid Extract taking the precedence in the United States, and may be found upon the lists of all the manufacturers of Fluid Extracts. It is represented by them that a fluid ounce of their preparation represents the activity of a troy ounce of the drug. In making my comparative examination of this preparation from the different manufacturers, I bestowed special care in obtaining the specimens examined directly from the parties without their knowledge for what purpose intended, and have performed the experiments of all the samples under the same favorable circumstances, with as much care and accuracy as the subject under consideration would allow. To make a standard preparation I procured a commercial quantity of the dried flowering tops of Cannabis Indicæ; these I reduced to a fine powder, from which I obtained with alcohol a fluid extract which I have adopted as my *standard*. In drawing my comparison of strength, the first step in the examination was taking the specific gravity of the different

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specimens; much variance was found in this particular, as will be seen by consulting the table which follows although this is no test of the superiority of the preparations, as it is demonstrated in the table *some* of those which yielded the least per cent. of resin had high specific gravities, being due to the menstruum to which in several cases glycerin had been added and which no doubt was at the expense of the exhaustion of the activity of the drug, *the Resin*. The color of the different specimens was also a noticeable feature, varying from a bright red to a dark green. A number of specimens had a considerable quantity of sediment deposited in the bottom of the containers. 1000 grains of each of these specimens of Fluid Extracts were placed in a porcelain capsule (which had been previously tared) by means of a water bath, evaporated to extractive consistence, the temperature of the water bath being regulated by a thermometer so that the temperature of the bath did not fall below 160°, or go above 180°F. When the different samples did not seem to loose any further moisture the temperature of the water bath was raised to 212°F. and kept at this point until by weighing no further loss was noticeable. All the capsules were then weighed, and to those containing glycerin cold distilled water was added and the glycerin by this means removed. These were again subjected to the heat of the water bath, again thoroughly dessiccated, and again weighed and the loss noted. This loss was due to the per cent. of glycerin which had been employed either for the purpose of exhausting the drug, or added to the preparation as a preserving agent. Whether or not this addition of glycerin is an advantage I will not attempt to answer; yet I will state that my experiments proved to my satistaction that glycerin is no solvent for the active medicinal agent of Cannabis Indicæ. Specimen Number Seventeen was peculiar in its general appearance. The fluid specimen as obtained from Mr. H. D. Garrison (who subsequently informed me that he was not the manufacturer of this fluid extract) presented a reddish liquid, not having the odor or taste of the drug, and, on evaporation, yielded an extract of a hard, brittle consistence, a very red color, a peculiar and bitter taste, which was sparingly soluble in cold water; completely soluble in diluted alcohol; but *insoluble* in alcohol of 95 per cent. When tested for resin of Cannabis Indicæ it gave no indication of containing a trace of this principle. We must set this down as not having been made from the foreign drug, and the error may have occurred in the name "Indian Hemp," being also applied to "Apocynum Cannabinum," an indigenous plant of the United States.

The remainder of the specimens examined were undoubtedly derived from the foreign drug, but the percent. of extract yielded by the different samples is surprising; ranging from 2.3 to 10.1 per cent. I am informed that the average yield of solid extract obtained by one of the largest manufacturers of this article is 10 per cent. I also exhausted a pound of powdered Cannabis Indicæ obtained from one of our best jobbing houses, and the yield of this was but 4.8 per cent, of solid extract. This should be another warning to conscientious Pharmacists regarding the use of purchased powdered drugs for the manufac-

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ture of preparations, and it is not surprising that many a valuable remedy is lost to Medicine by this diversity of strength, which is illustrated so very perceptibly in this instance. By referring to the annexed table we find that there were only two of the sixteen commercial specimens that have any claim to the name, "*Fluid Extract*" while six specimens do not contain the quantity of extract directed for the officinal tincture.

The strength of the tincture of the U. S. Pharmacopœia is about 1-21 or ℥vi to Oi, that of the British 1 in 20, German 1 in 19, French 1 in 20, Russian 1.20, Indian 1 in 20, Swiss 1 in 20, Hamburg 1 in 21, and the Hannover standard 1 in 8.

The quantity of resin contained in each of the specimens was determined by redissolving the extract (which was obtained from the specimens of the respective fluid extracts examined) in a small quantity of alcohol of 95 per cent. with the aid of a gentle heat in a water bath; the thus obtained solution of the extract was then precipitated by pouring it into a tared capsule containing a large excess of water, the resin was allowed to deposit and was separated by means of a tared filter, washed, and after drying weighed.

The resin thus obtained is of a brown color. When spread out thin on glass is transparent and of a fawn color. It has the peculiar odor and taste of the drug, and when heated, melts; becoming a liquid which takes fire, leaving no residue. A good and reliable test for this resin is as yet a desideratum and I hope at some future time to be able to supply this much needed want.

COMPARATIVE STRENGTH OF THE VARIOUS COMMERCIAL FLUID EXTRACTS OF CANNABIS INDICÆ.

No.	MANUFACTURED.	LOCATION.	Spr. gr.	Amt. Extract.	Amt. Resin.
1	"Standard" made from the Tops,..		.886	101.00	78.3
2	E. R. Squibb, M. D,, ...	Brooklyn, N. Y	.878	100.25	74.
3	Allaire, Woodward & Co.,..........	Peoria, Ill........	.861	97.9	73.2
4	Lazell, Marsh & Gardiner,..........	New York City.........	.860	83.75	68.
*5	John Cooper & Co.,..............	" "	.909	83.	65.3
6	Burroughs Bro's. Manufacturing Co.	Baltimore, Md.	.857	82.2	64.
7	Henry Thayer & Co.,..............	Cambridgeport, Mass...	.861	76.	54.5
8	Kneeshaw, Norris & Co.,..........	Philadelphia, Pa........	.830	58.	38.
9	Tilden & Co.,......................	New Lebanon, N. Y....	.845	57.	35.5
10	Chas. Heylman,....................	Chicago, Ill.............	.841	56.	34.
*11	W. R. Warner & Co.,..............	Philadelphia, Pa........	.867	49.5	29.
12	W H. Schieffein & Co.,............	New York City	.886	43.	27.25
13	McKesson & Robbins,..........	" "	.896	41.	26.
14	Parke, Davis & Co.,................	Detroit, Mich...........	.924	37.	23.5
*15	Depuy Manufacturing Co...........	Chicago, Ill..............	.914	25.25	18.
*16	W. G. M. Gordon,..................	Cincinnati, Ohio........	.980	23.	17.5
*17	Edwards & Hainsworth,............	Elgin, Ill................	.972	44.	.....
18	Tincture U. S. Pharmacopœia.		.750	47.8	.....

* 5 Contained Glycerin. Grains, 110.
*11 " " " 18.
*15 " " " 59.5
*16 " " " 200.
*17 No Resin found.
17 This fluid Extract was obtained from H. D. Garrison, Manufacturer of Fluid Extracts, Chicago, Illinois.

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ON THE DEPLORABLE CONDITION OF PHARMACY, ITS CAUSES AND ITS REMEDIES.

BY C. B. ALLAIRE.

These few remarks are called forth by Mr. Streit's article in the March number of the PHARMACIST, which it seems to the writer is calculated to mislead the reader and cause misapprehension as to the condition, present and prospective, of pharmacy in this country, and especially in the west.

While we do not deny the truth of many of Mr. Strait's statements, we hope to offer a few remarks in extenuation and explanation of the same. It is natural to look to some outside source for relief from any burden that oppresses us and so we expect the State Legislature or Congress to make laws that shall make us intelligent and competent to fill our several stations in life with credit to our profession and ourselves:—or perhaps that is not a fair statement of the case; we ask that the Legislature shall give a few of us who are competent the monopoly of the trade till others can, or are willing to qualify themselves. Now if the condition of Pharmacy *really* is as Mr. S. assumes for it, how would such a law affect the dear people for whom we have so much concern? If the law is just for Illinois, it would be just for the whole country, and it seems to us that the action of such a law as the one mentioned in the 2nd clause, p. 76, would be very severe on the thinly settled states. We venture to say that there are not in this country enough competent pharmacists, those coming up to Mr. Streit's standard, to supply one to every five towns. Let us look at the cause of all this, and we may be able to see that it could not well be otherwise.

Illinois has about 1,500 druggists; those whose business is exclusively or mostly in drugs. This does not include general store-keepers whose stock includes drugs in most instances. Our population is about one-sixteenth of the whole United States: making an estimate from this of the whole number of druggists in the United States there are about 24,000. Now suppose our pharmaceutical colleges continue to turn out 300 graduates per year, which is a very large estimate up to the present time. It would take only eighty years to meet the requirements of such a law provided the country does not grow any more.

Let us realize that ours is a new country. Many of our druggists are in the business because there is a demand for medicine, and they are perhaps as well qualified as any one to fill the place.

There are not enough qualified druggists is the country to supply the demand, and when we consider that every year forty millions of people are supplied with medicine from such a source, it does not seem to us that the percentage of deaths or accidents resulting from the negligence or ignorance of the dispenser, is large, at least not so far as our information goes. Let us say here, to the credit of the druggists in the West we have met very many of them in the way of business and we find they have made the most of their advantages, and as a class are more intelligent than any other class of tradesmen.

Now let us see what can be done to improve our condition, for it is evidently capable of improvement. We think Mr. Streit hits the

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nail on the head in his fourth proposition. Though not capable of producing a thorough reform, it is undoubtedly the speediest and most practical way of educating a large and widely distributed number of persons. This brings to mind a suggestion made to the writer by Mr. Sargent while in Chicago recently.

If we remember rightly it was this: "The creation of a fund by the subscription of one or two dollars yearly by every druggist in the state or in the northwest, who desired to subscribe and receive the benefits of the same. This fund to be used for the purpose of buying books of reference, and periodicals pertaining to the trade, etc, and for paying a competent person whose duty it should be to have charge of the same, subject to the inspection of any member of the association, and whose duty it should be to answer communications and furnish information to distant members of the association;" and we would add, that this privilege be extended to those not members upon the payment of a small fee for each inquiry. This plan would place an amount of information at our disposal that we could not obtain in any other way, and we hope to see the plan inaugurated and carried out successfully, as we believe it can be. And further, let us take an interest in the apprentices, the pharmacists of the future; give them all the information we can, place at their disposal books and periodicals pertaining to the trade, and give them some time to read them. Let us extend the circulation of the present current pharmaceutical journals rather that create new ones, for by so doing we are putting it into the power of our publishers to give us more for *our* money, besides extending the influence of the journals and educating our ignorant neighbor. Self-interest prompts us to keep our competitor ignorant, and to create the impression that each of us knows all that is worth knowing, but we say let knowledge be free or else let us stop talking about the "Deplorable condition of Pharmacy."

PEORIA, Ill., March, 1874.

NOTES ON PANCREATINE.

BY CHARLES HAMM.

In preparing pancreatine according to the same process as that of saccharated pepsin, I obtained a fine, grayish-white powder, of which one grain will emulsify one drachm of cod-liver oil. While pepsin, in order to digest solid food, is best administered with acids—pancreatine, the digestive principle for fats and oils, is more properly administered with alkalies.

I would recommend the dose to be that of pepsin, from two to eight grains for adults, and from one to two grains for children. The powder I consider more appropriate than the liquid form.

Pancreatine has been heretofore but little used in medicine, much on account of its high price. (Savory & Moore's pancreatine, which has a very unpleasant odor, is sold as high as $3.50 per oz.) From one hundred pancreas, fresh from the bench, I have obtained 25 ounces of saccharated pancreatine, in strength the same as Savory & Moore's, and free from the nauseous taste of the latter; this result should moderate the price.

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The following experiments show the emulsifying power of pancreatine. Three mixtures were made, each containing 16 grains of pancreatine in two drachms water. After allowing it to stand for a few hours, I added to No. 1, eight drops of concentrated muriatic acid; to No. 2, eight grains of carbonate of potassa, and nothing to No. 3. To each of these mixtures two ounces of Marseilles olive oil were then added, and shaken for a few minutes until emulsified.

No. 1. The acid mixture formed at first a thin, good-looking emulsion, but separated in about six hours.

No. 2. The alkaline mixture formed at once a thin, white, good-looking emulsion, which kept in a good condition for 24 hours, and again formed an emulsion by shaking.

No. 3. The neutral mixture formed a thick, rich emulsion, which was partially separated in about 24 hours, but mixed again by shaking.

These experiments show that the emulsifying power of pancreatine is greater in the neutral and alkaline than in the acid form; greatest in the alkaline, where it is aided by the saponifying power of the alkali.

In prescribing cod-liver oil I would suggest the following formula:

Take of Pancreatine, in powder, - - -	2 drachms.
Water, - - - - - -	2 fluid oz.
allow to swell and add	
Bicarbonate of Soda, - - -	1 drachm.
rub well together, then add	
Cod-liver Oil, - - - - - -	14 fluid oz.
Oil Peppermint, - - - - -	5 minims.

Dose.—A tablespoonful three times a day.

ON THE PRESERVATION OF HERBS, ROOTS, BARKS, ETC.

BY HUGO B. DWYER.

The volunteer paper with the above title, read by Mr. Joseph W. Harrop of Leavenworth, Kansas, at the 19th annual meeting of the American Pharmaceutical Association caused me to investigate the subject with more than ordinary diligence, and I have found that the manner of drying is more at fault than dishonesty on the part of botanical druggists. I will now state that I have dried specimens of medicinal herbs by both of the processes generally used for that purpose, and with but indifferent success. The one in which heat is used is decidedly objectionable as the major portion of any volatile principel is certainly driven off, and the other, of exposure to air and sunlight, is very little less so, as the volatile principles become oxidized, and the drying being so very slow, that there is always a large percentage of decay, and the more delicate the plant the larger the percentage of deterioration. My only object in continuing the investigation was to find some method of preserving an herb or root in an imperishable condition so that it would represent the fresh, except the loss of water. My experiments were all unsatisfactory, so I need not mention them in detail.

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Recently I have been shown some samples of herbs, roots, etc., grown and dried at Niles, Michigan, by the Alden process of pneumatic evaporation, and I must say that if the goods put in market by these parties are as good as samples shown, nothing is left to wish for. The process may be briefly described thus: The principal part of the apparatus consists of a vertical chamber or shaft, 25 feet high and 5 feet square, containing a series of frames one above the other, 4½ inches apart, covered with netting, and moved upward all together by endless chains. The heating apparatus consisting of a steam coil, is placed under this chamber, from which currents of air, heated to any required temperature, pass up, through, and around the herbs. On each frame is spread say 20 pounds of the material. The lowest frame is first placed in the chamber directly over the heat, at the bottom of the shaft, where it remains from three to six minutes. It is then moved up 4½ inches, and another frame of herbs is placed beneath it. At regular intervals the whole series of frames are moved upward 4½ inches, and a fresh frame is put on beneath them until they are all in, 50 in number, containing about 1,000 pounds. At this time the shaft being full, one frame is taken off at the top, and one is put in at the bottom at intervals, varying with the article treated. The water contained in the herb is seized by the ascending air, and passes with it up, through, and around it;—the moisture is taken gradually from the herb, enveloping it to the last in a cloud of vapor. The pores of the herb are thus kept open, free for the circulation and exit of vapor until all the free water is removed; the remainder (a small per cent.) being held as hydrate. I was at first inclined to believe that the heat used would destroy any volatile principle contained in the drug, but am now firmly convinced that such is not the case, as a sample of peach leaves shown me tasted quite as strongly of hydrocyanic acid as any fresh leaf I ever tasted. Now if a volatile principle so delicate and so liable to be injured by heat is not so injured we need have but little fear of the others, such as those contained in the herbs of the mint family. The degree of heat used is from 80° to 110° Fahr., and with articles containing volatile principle never higher than blood heat. The peculiarity in the Alden preserved herbs, etc., is in their being absolutely fresh, etc., they having undergone no injurious chemical change during their conversion into an imperishable condition. At the same time they resemble in appearance the finest qualities of dried herbs, although they are, in fact, the very opposite of such; the process of conversion being directly opposed to natural or any previously known artificial method of drying. The conditions of natural drying are such, that decay commences before evaporation begins, and continues through every stage of the process, until all the essential flavors which constitute the charm of freshness, are lost. The pneumatic evaporation operates so rapidly as to leave no time for the exhalation of the flavoring essences, or the deterioration of color or structure by decay, and wanting only water to resume all its properties as at first.

The most important feature of all this to the pharmacist is the uniform quality of his botanical stock from which to make his preparations.

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And now I have several suggestions to make to the parties preparing these goods. 1st that they adopt the suggestion of Mr. Harrop of dating each year's goods, so that we may know for a certainty how old they are; 2nd, that they change their style of package to that of Wilson Bros., of Boston, and that each package shall have the common and botanical name on the label, and 3d, that they press the herb as firmly as possible and wrap in a good thick sized paper which will preserve them from moisture.

THE POPULAR REMEDIES OF TOORKISTAN.

BY PROF. DR. GEO. DRAGENDORFF.

(Continued from page 54.)

VEGETABLE DRUGS.

A. Tungi et Algae.

1) By the name of *Chorikun* (*Palm: Gorükun*) agaric was found, which according to Fedschenko and Palm comes from China, and it is used as a purgative. In Arabia, where it (*Serapion*, *Ebn Baithar*) also was used as such, it was formerly called according to the Greek (*Agarikon*) *Garikun*, in Persia it is called *Harikun* (ârîkûn), in Egypt *Agarikun*. *Gmelin* says that a sweetish fruit is designated by the name of *Gorokun*, and *Fedschenko* has in his catalogue a *Gorikun* the home of which is also said to be China. In Moscow I found only a mixture of the fruit of Malvaccae and Boraginae so called, the fruit of which also occurs under the name of *Tuchmi Chatmi* (which see 142) and the latter might be derived from a Cyno-glossum. *Lehman* also had among his Persian remedies the fruit of a Cyno-glossum, which was termed *Chariak* and *Ispansu*.

2) *Tschibitschin* (*Tschubi-tschini*) is the drug which was formerly considered to be the rhizoma of Smilax China L. and *Hanbury*, also Scherzer in his travels mention Pachyma Cocos Fr. as its native plant. The Toorkistan drug really represents this fungus. They are smaller, very spongy and light pieces, irregularly furrowed, but otherwise similarly formed to "Chinaroot" found in our commerce, which it also resembles in color. This is the medicament to which *Fedschenko* attaches the term "Sarsaparilla." It is used as a purgative and imported from China. In Persia and Hindoostan this fungus is also called *Wolasbur* besides Tschoob-tschini, in Arabia *Khusb sini*, in Armenia and Turkey *Schabaschi*, in China *Sanhira* and *Ouquara*.

3) The fungus called *Pugak* (*Palm: Tokak*) I found among the dyeing materials of the Toorkistan exposition. It is in fact a Polyporus, as I supposed in my first essay, is found on Mulberry-trees, and probably P. Hirsutus Fr. It is ligneous and similar to our spunk, dark greenish-brown, and occurs mostly in broken pieces, the size of a walnut. It appears to be employed only for technical uses. The same is true

4) Of the *Goschna*-fungus. I found it among the articles which are used in the silk manufacture. Decoctions of it are used for saturating the silk-threads before they are spun off, and where the fungus cannot be had, it may be replaced by an infusion of the seeds of Cucurbitaceæ.

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In Persia the allied Morchella esculenta Pers. is termed *Gutschi* according to *Honigberger*.

5) The samples exposed of the alga called Dscharim Dorò coincided with those heretofore described by me. *Fedschenko* like *Palm* mentions China as its source. It is used in the form of cataplasms against swellings.

B. Roots, (Root-barks,) Root-stocks, Tubers, Bulbs.

6) *Karandir* is the root of *Inula Helenium* L., which according to *Fedschenko* grows abundantly among the hills of Toorkistan and is used in the form of decoction; *Ebn Alawwan* and *Ebn Baithar* mention this root under the name of *Rasan*, (*Rasana* in Sanscrit); the latter calls it also *Kutsschami*, while according to *Ainslie* it is now called in Arabia *Ussul el rasun*, in Persia *Behki zangabalis shami*. (Ussul, Usl, Asl=Bulbus and Radix, likewise the Persian Bekhi, Bikhi, Bikh. Shami really used temporarily—vespertinus, sometimes and here properly meaning also the Syrian. Zangabil=Ginger. Kusth=Costus. Therefore Syrian Ginger, Syrian Costus.)

7) *Baagmana sefid* (sefid, the Persian for white,) seems to be also the tuberous root of a Compositæ. It is very fleshy, white, partly covered yet with a thin, grayish-brown bark, somewhat fibrous, but free from prosenchyma. The bark consists in part of parenchyma containing inulin. The taste is flat. Whether it is not derived from a kind of Atractylis? It is mentioned as a native of India.

8) *Bekhi Kosni* is the bark of the root of Cichorium Intybus L. It is gathered in Samarkand, and, as is already mentioned by *Dioscorides* and *Gelen* and later by *Rhases*, etc., used as a correcting addition to purgative remedies. Among the Arabs the plant was called *Hindaba* and *Abd-elamirum*; at present it is also called *Chicknrjeh* for instance in Egypt.

9) *Kusthi schirin* means literally sweet Kostus (*Kusth*, (Sanscrit, *Kusht'he* properly *truth*.) It is also not doubtful that we have here a kind of Costus-root, about which it was said that it was raised in Samarkand. I found pieces 6-8 ctmtr. long and about 3-6 ctmtr. thick, somewhat knotty, furrowed on the surface and coated with a very hard, fibrous bark. The medullary rays of the ligneous portion and the parenchyma of the bark were free from amylum, rich in oxalate of lime. The ligneous rays consist for the most part of yellow-colored prosenchyma traversed by tessellated cells. The taste is a little aro matic and bitter. The drug is exhausted with oil and the extract thus obtained used in purulence of the ear. *Dioscorides* and *Galen* already used Costus in this same manner. Besides the name Kusth is also given to a number of other drugs. *Knsthi shami* has been mentioned already; *Ebn Baithar* mentions *K. hindi*, probably identical with our sweet, a *K Cahri*, wihch is white and bitter, and a *K. babaki*.

10) Of *Kusthi talch* I have spoken in my first essay; here I will only mention something about the name; according to the lexicons the adjective signifies a large thorny tree (acacia gummifera ?), while in Moscow I also found Bryonia under this name. According to *Ainslie* Galanga minor is called so too. I presume that this name

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properly belongs to the bitter Costus-root, and that physicians are under the impression they use this when the prescribe *K. talch.* Their statement that it comes from India seems to support this presumption, for Bryonia is met with everywhere in Toorkistan. The Persian name for Bryonia, according to *Honigberger*, is at present *Kern deschti.*

11) To what has formerly been said about *Akir kara* I may add, that in this exposition the already described root of Anacyclus was represented. Lately I met with the same root in a Caukasian collection of medicaments under the name of *Odur Kairi.* That the name originally belonged to another drug, probably the rhizoma of *Achillea Ptarmica* L., seems to be borne out by *Ebn Baithar*, who calls it an error, when the Arabs translate the Pyrethron of *Doscorides* with Ahis Kara.

12) *Aslisust* is the root of a Glycyr-rhiza, in every way similar to our liquorice-root. It was found crude as well as peeled, and it was expressly mentioned that the native plant was very common in Toorkistan. The extract (compare *Rasdauru* No. 202,) is also much used. *Ebn Baithar* and *Serapion* call our root *Sus*, at present in Arabia *Ussul sus* and *Asl sus*, also *Oerksus*, in Persia *Bekhi mekeh*, i. e. Mecca-root. But whether this name as well as that of *Oerk* (*Airk*), the latter at present a term for root in general, did not formerly belong to the root of *lissus arborea* Forsk, ? *Fedschenko* speaks about the use of the decoction of liquorice root for cough, which was also known to the ancient authors.

13) *Filfil* (*Fulful*) *Mujah* is called here. as well as among the ancients, the root of *Piper methysticum Forst.*, the home of which Palm mentions India, and about the use of which I have no further information. Filfil Mujah means a kind of pepper causing a flow of tears.

14) *Andschir*, a brown polycephalous root; this I have been unable to examine closer. The name belongs really to *Ficus Carica* L., the root of which, according to *Dioscorides*, was used by ancient authors on account of its milky juice.

15) *Kantebar* occurs among *Gœbel's* Persian drugs under the name of *Baagman* (compare No. 7). Brought from Samarkand, it is a brown, fleshy root, strongly furrowed longitudinally, presented cut in disks of about 2 ctmtr. thick, The cross-sections show concentric and radial elevations, caused by unequal dessication, as in Bryonia. In the soaked drug an external bark is recognized composed of dark brown cork-cells, followed by a layer of colorless parenchyma with small round kernels of starch and collections of caystals and further on by another of cells filled with a brown resinous mass. These brown cells, besides others disposed in rows, filled with amylum and colorless parenchymas occur also in the inner portions of the bark and the ligneous rays of the parenchyma. Prosencyma is not present; the ligneous body is much fissured on account of the breaking of medullary rays. The name of this drug may be said to be derived from kent=sugar and bar=carrying, holding, probably also from Kent and Bir=sugarroot (Bir in Sanscrit, root).

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16) *Bekhi Badian* was described in my first essay. *Fedschenko* places it among the purgative remedies. The name might also mean fennel-root (compare *Arpa Badian* No. 133), to which the drug bears no resemblance, however.

17) *Bekhi kabar* I take to be the bark of the root of *Capparis spinosa* L. It is found in Samarkand and used in the form of infusion against jaundice, also in congestion of the spleen, for which purpose it was already used by *Dioscorides* and the old Arabian physicians. The latter also called it Kabar, *Lasaf*, and the fruit of Schafih. At present it is called in Arabia *Usl el lasaf*, in Egypt *Chagar el Kabar*, in Persia *Bekhi Kabar*, while in Hindoostan the allied *capparis galeata* occurs as Kabar post (Percira.)

18) About *Zirâwandi tawil* only this, that on this occasion again the name was applied to Mandragora, while it really belongs to *Aristolachia longa*. The native plant of

19) *Zirâwandi Mudacheratsch* (*Mudergatsch*) I can now determine as the *Bongardia Rauwolfii C. A. Meyer*, which also occurs in other places as a popular remedy. It seems to me to be very similar to *Iangpwan-hea*, pictured by *Hanbury*; see "Notes on Chinese mat. med." in Pharmac. Jour. & Trans. II. Ser. T. 3, p. 317. According to *Fedschenko* it is said to be used in a similar manner as Kusthi schirin. Ainslie says that among the Arabs the name denotes to this day the round Aristolochia, which is called by the Persians *Z. gerd* (=*round*). The construction of the word Zirâwand is interesting. The final syllables Râwand=Rhubarb occur again in the names of Gutti, Sorenrewand, Robrawand and Agorai Rawand (compare No. 186).

20) I have also investigated the origin of the tuberous roots called *Schiresch*. They are different Asphodeleæ; species of Ammolirion, Eremurus and Henningia, especially *H. Kaufmanni Rgl.* and *robusta Rgl. Ebn Baithar* was therefore right when he contested the identity of Siratsch with the true Asphodel. *Schresh* also occurs in Caucasia, mostly in a powdered state, and gathered, according to the report of the medical association there, from *Asphodelus ramosus L. Husson* too has Siras among the Egyptian drugs (whether this is identical with the root of A. Kotschii ?).

21) As *Antibar* was labelled the root of Rubia tinct-*orum*. In Arabic it is called *Fuwwa Fuwwat* and *Uruk ahwar* (red root), in Persian *Rodeng*. Among the Kirgise also it is called *Kisil Bujah*, red root. The entire plant, which in Toorkistan is largely cultivated on account of its technical importance, is called *Rujan*. Concerning its medicinal use I could obtain no information. *Galen* and later *Ebn Baithar* used madder in affections of the liver and spleen, constipation, suppression of urine, leprosy, palsy, etc.

22) *Chowantchusa*. Under this name were represented the barks of the root of *Lawsonia inermis* L. as well as the root of *Alcanna tinctoria Tausch*. *Fedschenko* mentions India as the source. The name is derived from Chob (compare in 2 Tschoob) and Anchusa, which latter besides Akschusa was taken from the Greek by the old Arabian authors. The latter also mention *Schadscharat edamm* (i. e.

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Blood-tree), *Sandschar*, *Kahalä*, *Hamira*, *Radschil el hamanat* and *Henne*. In Syriac *Lawsonia inermis* is at present called *Haluna*, in Hebrew, Kopher, (the Kypros of the Greeks), in Persian *Musch-gusch* and *Dschubscher*). *Goebel* calls it *Chabadschu* in his collection of Persian remedies). The Turks also have *Hawaidschuwa* for *Al-kanna tinct*. It is used in the form of a salve, as in the time of *Dioscorides*, against ulcers, ringworm, burns, etc.

23) Rhubarb, which I have mentioned in my first essay, is here as in other places called Râwand. Besides that which is collected in Toorkistan; Fedschenko described another kind, coming from China, much broken, called *Karmah*. The beltiric Tartars call the rhapontic Rhubarb Ssöne, the koibalic Tartars Sarapsan. The Kirgise call Rheum *Schara moden*, *Rhapontik Badhjona* and *Tuschuett*, though the latter word is also used for other yellow-colored and coloring roots (compare Mamiron No. 30). The Egyptians call it *Raw-end dsaker*.

24) *Turbut* (Turp), the root of *Ccnvolvulus Turpetum* L., is so called by the old authors as well as at the present time in Arabia, Egypt, Caucasia and Persia (Sanskrit, *Triputa*). In Hindoostan *Ti-kura* is met with. The Toorkistan drug is said to come from Samarkand. *Fedschenko* also speaks of its cathartic effects, which were well known to ancient writers.

25) Schakokul I take to be the root of *Pastinaca Sekakul Russ.* According to *Avicenna* and *Ebn Baithar* the word denotes another root; perhaps as at present, according to *Forskae* and *Husson* in Egypt, that of *Eryngium campestre* L.; according to the latter a Papilianacea. My sample is much more compact and richer in starch than the root of Eryngium. According to *Gmelin* a Schokakul is known in Persia, of which Sàrdak and Hàsgegàl are synonymous, but he does not give any description of it. Like the Schekakul of old authors this is also designated as an aphrodisiacum. According to *Fedschenko* it comes from Egypt; Palm says from Afghanistan.

(*To be continued.*)

PATCHOULI*

Patchouli, or Pucha-pat, is the Hindostanee name of the plant from which the perfume is obtained, which is known to bontanists as *Pogostemon Patchouli*. It belongs to the order *Labiatœ*, which furnishes us with so many of our aromatic plants, such as sage, thyme, marjoram, rosemary, lavender, mint, pennyroyal, etc. The patchouli is tall and shrubby, not unlike the garden mint in habit, with broad, egg-shaped, opposite leaves, about three inches long, and thick spikes of small purplish-white flowers. It is a native of Penang, Silhet, and the Malay Peninsula, and is imported into England from Hindostan and Bengal. In India it is a very popular perfume, being generally sold in the bazaars, besides being used in tobacco for smoking, and for scenting the hair of women. It was not imported into England until 1844, when forty-six cases, some containing fifty pounds, others one

*From The Country.

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hundred and ten pounds, were put up for sale at Garraway's Coffee House. The price asked was only six shillings a pound; but there were no biddings, which proves that its popularity is of but recent date. This lot was brought from New York, to which place it is said to have been taken from China. The plant flowered in Europe for the first time in the winter of 1844, in the greenhouse of a gentleman at Orleans; sincc then it has been in cultivation in many botanical gardens, and may usually be seen in the Economic House at Kew. Some years ago genuine Indian shawls could always be distinguished by the peculiar odour which they bore, the cause of which was long unknown. It was, however, at length discovered by the French manufacturers that this odour was due to patchouli, and they imported the plant in order to give articles of home manufacture the same perfume. The smell of patchouli may also be detected in Indian ink, in the manufacture of which it is an ingredient. The dried leaves and tops are the parts imported, and these may be bought in the markets in bundles of half a pound each. Dr. Wallich states that a native friend of his told him that the leaf is largely imported by Mogul merchants, that it is used as an ingredient in tobacco for smoking and for scenting the hair of women, and the essential oil is in common use among the poorer classes of the natives for imparting the peculiar fragrance of the leaf to their clothes. The sachets of patchouli which are sold in European shops consist of the herb coarsely powdered, mixed with cotton wool, and folded in papers. These are simply placed in drawers and wardrobes to drive away moths and insects. The patchouli plant is in great favour with the Arabs, who use and export it more than any other nation. They take up great quantities on their annual pilgrimage, and use it chiefly in stuffing mattresses and pillows. They believe it to be very efficacious in preventing contagion and prolonging life. It is also said to protect clothing from moths. The preparation of the herb is very simple, the tops—about a foot in length—being merely gathered and dried in the sun. It must not, however, be allowed to get too dry, or the leaves will become brittle and crumble in packing. It is recorded that ill effects, such as loss of appetite and sleep, have arisen from the excessive employment of patchouli as a perfume ; and it is very probable that such effects would be produced by it upon certain constitutions. The scent is more powerful in dry than in damp places. The odor is due to a volatile oil, which is contained in the leaves and stems. When distilled, it is yellowish-green, with the same smell as the herb, but neither a burning nor an astringent taste. It is almost as heavy as water. A hundredweight of the plant yields about twenty-eight ounces of oil, or, according to a specimen of the latter in the Kew Museum (where may also be seen the plant in its dried state as imported), one ounce of oil may be obtained from two hundred ounces of the herb. It is from this oil that the essence of patchouli is prepared. In the sachets of patchouli, however, the corsely powdered leaves are used.—*London Pharm. Journal.*

We have just learned of the death of Mr. T. N. R. Morson, senior member of the well known firm of T. N. R. Morson & Son, London.

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CROTON CHLORAL.

BY ALFRED H. MASON, F. C. S.

(Vice President of the Liverpool Chemists' Association.)

A new remedy, with chloral as its basis, and introduced by the discoverer of the therapeutical application of hydrate of chloral, naturally commands attention. At one of our general meetings in 1872 session I exhibited a specimen of this, then new, compound, named by Professor Liebreich croton chloral hydrate.

Within the last few months this medicine has commanded much more the attention of medical men, so that the requirements of it somewhat exceed the first demand for its predecessor when sold at about the same price.

Crotonic chloral was discovered somewhat accidentally by Drs. G. Kræmer, and Dr. A. Pinner. These gentlemen were undertaking experiments on the action of chlorine on aldehyde, chiefly in the hope of thus obtaining chloral, and of being able to utilize the valueless runnings obtained in the distillation of crude spirit, which consists of alcohol, aldehyde and paraldehyde.

Chlorine was passed into aldehyde, at first carefully cooled in a freezing mixture, and only heated at 100° at the close of the reaction. The first few bubbles caused the separation of a small quantity of solid met-aldehyde, whether originally present in the aldehyde, or formed by the reaction, is undecided. After a short time evolution of hydro-chloric acid set in and every trace of chlorine was absorbed. With 100 grains of aldehyde, at the end of 24 hours, no further absorption took place even at 100° The resulting brown mass consists of two layers; a lower, darker, almost solid; and an upper, lighter colored, liquid layer. The latter is a saturated solution of hydrochloric acid and the bodies of the lower layer in water. As it was found impossible to separate these two well, the whole was submitted to distillation. A considerable quantity passed over between 90° and 100°; the thermometer then rose rapidly to 160°, and the main product distilled over between this and 180°; the temperature again rose to about 240°, but only decomposition products were obtained, and a considerable carbonaceous residue remained in the flask. By means of fractional distillation the portion boiling at 160° to 180° was quickly purified, and a body boiling at 163° to 165° was isolated, which proved to be crotonic chloral.

The specimen I have here was produced by passing perfectly dry chlorine gas over pure aldehyde (C_2H_4O)—the action is very violent, and many precautions have to be taken to prevent explosion and to condense the volatile products of the reaction, and still to allow the enormous quantities of hydrochloric acid gas to escape. After a time the liquid thickens; at this stage the current of chlorine can be passed through the liquid. After another interval it becomes necessary to warm, and at last to boil the liquid through which the chlorine is passing. At length hydrochloric acid ceases to be evolved, and crude croton chloral is obtained—the process taking about 48 hours to complete. This crude body is *mainly* ordinary chloral, but mixed with a variety of other products. By fractional distillation and treatment with sul-

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phuric acid—true croton chloral($C_4H_3Cl_3O$)—tri-chlorcrotonic aldedyde is obtained. This is a dense oily liquid of peculiar odor, somewhat recalling ordinary chloral; treated with a considerable excess of warm water it hydrates and dissolves, and upon cooling, croton chloral hydrate ($C_4H_3Cl_8O,H_2O$) is deposited, but still in a crude form, most rank and offensive in flavor. It has to be purified by rather a tedious process, and is obtained, when pure, in beautiful white silvery crystals, with a sweetish melon flavor, which melt at 78° C.

From this it will be quite evident (and it is probably wise to note it, that this body does not bear any relation to croton oil, or crotonic acid, obtained therefrom, although its chemical constitution proves it to be the chlorated aldehyde of crotonic acid.

Croton chloral is the substance represented by the same term in the allyl (C_3H_5) group that chloral has in the ethyl (C_2H_5) group. Its outward appearance differs from hydrate of chloral by the salt being much lighter, and in flocculent silvery crystals—by its being almost insoluble in cold water and very soluble in alcohol; it is soluble in hot distilled water, and rendered more easily so by the addition of 25 per cent. of pure glycerin: it is insoluble in chloroform.

It will be remembered that hydrate of chloral owes its value as a medicinal agent to the supposed elimination of chloroform when it comes in contact with the alkalies of the blood, it having been shown that by reaction with alkalies chloroform is produced. Crotonic chloral, when subject to the influence of an alkali, first forms allyl-chloroform, a trichlorated body which is rapidly decomposed into a bichlorated substance called bichlorallylene. In a communication to the *British Medical Journal*, Dec. 20, 1873, Dr. Liebreich says:—"Both chloroform and trichlorated substances act in the first stage upon the brain—in the second, on the spinal cord—in the third, on the heart."

Although Dr.Leibreich's theory has met with and still finds general favor there are many medical men who think it has not any valid support, believing that chloral exercises a specific action of its own upon the organization, which is not to be reasoned out from an exclusively chemical basis.

The medicinal advantages of hydrate of croton chloral over ordinary hydrate of chloral are:—1st. In cases where hydrate of chloral is inapplicable on account of heart-disease (it does not interfere with the action of the heart). 2nd. In cases of neuralgia in the district of the nervus trigeminus (it is a remarkable phenomenon that when given in small doses it produces anasthesia of the fifth nerve, singling out one nerve, and that one alone, while the sensibility of the body generally and pulse and respiration remain unaffected). 3d. In cases where very large doses are necessary to produce sleep, here Liebreich recommends the addition of croton chloral to hydrate of chloral.

Dr. Burney Yeo, of King's College Hospital, London, &c., is making a systematic investigation on the value of this medicine, and he lays his first communication in a paper published in the *Lancet*, January 31, 1874; he administered it in six different classes of cases, and gives details of each. The results he has arrived at are, that in croton chloral we possess a remedy of remarkable efficacy in some cases

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of neuralgia of the branches of nervus trigeminus, and that it also has the power of affording relief in other obstinate forms of neuralgia; that it is of use in certain cases of diffused muscular pain; that there is scarcely any remedy that is likely to prove more valuable for the relief of the distressing night cough of chronic phthisis. Its efficacy in procuring sleep seems very variable in moderate doses; is effect in purely rheumatic cases is scarcely appreciable, while for hysteria it is of little or no use.

Dose.—Dr. Yeo says:—"I am satisfied that in dealing with this substance we must give an unusually wide range to the dose, for its effects vary greatly. The doses I have given varied from 1 to 10 grains. In delicate females I have found very decided effects from doses of 2 and 3 grains; in strong males a dose of 10 grains is often required to produce any appreciable effect. As may be expected, persons who have been accustomed to the use of anodyne medicines require larger doses than others."

The dose must always be proportionate to the severity and long continuance of the pain. I would advise that it should be always given in moderate and quickly repeated doses, until the amount of "tolerance in medicine in each particular case has been discovered. In severe neuralgias, from 2 to 5 grains may be given every hour, or the smaller dose every half hour, until 15 grains have been taken. At present I do not think it safe to go beyond this dose."

I have made several experiments with different solvents to present this medicine in a convenient form for dispensing, and before seeing Dr. Yeo's paper I found that the addition of glycerin was of great assistance in making the solution. I can fully endorse his decision. The following formula yields the strongest solution that is permanent:—

Croton Chloral Hydrate	64 grains.
Pure Glycrin	½ ounce.
Hot Distilled Water	1½ "

A syrup can be made containing 2 grains of croton chloral hydrate in the fluid dram, by adding 4 ounces of simple syrup to the above solution, and the disagreeable taste may be removed by any flavoring the pharmacist sees fit to add.—*Chemist and Druggist.*

PREPARATIONS OF INDIAN HEMP.*

The dried leaves of bhang are sometimes smoked alone or mixed with tobacco; but the more common form of taking bhang is to make it up with flour into a cake, or a majun or sweetmeat, which has a green color. There is also a common method for habitual drinkers of "banghi," viz., of infusing the leaves in cold water in a pestle and mortar, and pouring off the clear liquor through a cloth strainer.

The eating of these sweetmeats by persons unaccustomed to them produces the most violent mania and excitement, and the eyes become red and inflamed.

I recollect, says Baden Powell, at Lahore, a case of attempted sui-

*From the Official Catalogue of the Indian Department at the Vienna Universal Exhibition.

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cide by a youth, where it appeared he had purchased sweetmeats which contained bhang, of which he was not aware; he had not even taken bhang before. After a time he became almost frantic, rushing wildly about hither and thither, and at last threw himself into a well, whence he was fortunately rescued; after this he fell into a kind of heavy sleep or stupor and then recovered. Persons who are accustomed to the excitement of bhang are not usually so violently excited.

The common majun to be met with in the bazaars is often merely sugar, perhaps with ghi, and the bhang without the other ingredients.

The principal forms in which hemp is found in the markets of the East† are: 1, haschich; 2, bhang; 3 gunjah; 4, churrus; 5, a variety of electuaries, pastes, etc., in all of which butter or some other oleaginous matter is the basis of formation.

I. The first, or Haschich, is the Arabian name given to the dried tops of the plant grown in Upper Egypt, the meaning of the word being "herb," or "herbe par excellence;" the tops are gathered some time before the seeds are come to maturity.

II. Bhang is an Indian preparation, consisting of the larger leaves and capsules which, according to Dr. O'Shaughnessy, is the cheapest form used in India, and therefore in common use among the lower orders for smoking, etc.; from it is prepared an intoxicating drink,and it forms a part of the confection called majoon.

III. Gunjah is the chief Indian form of the dried plant, and consists of the dried tops of Cannabis after flowering and from which the resin of the leaves has not been removed; it is chiefly sold in the Calcutta bazaars for smoking, in bundles two feet long, and three inches in diameter; the color is dusky green, the odor agreeably narcotic, the whole resinous and adhesive to the touch. The specimens I have examined consist of a central stem which branches, round which are aggregated elongated oval masses about 1½ inches long, and closely pressed together by adhesive resinous matter; when steeped in water these masses can be teased out, and are found to consist of the tops of the plant—that is, the flowers fruits, and smaller leaflets.

IV. Churrus is the resinous secretion alone, and is, therefore, the most powerful shape in which hemp may be used; but it is at the same time expensive, and is not met with in Europe, except as a museum specimen. The specimens in Dr. Christison's museum are variously sized nodulate, round masses, from the size of a pea to that of a walnut, and of greenish black color. It is collected during the hot season by scraping the leaves and tops. Dr. O'Shaughnessey states that in Central India and Nepal the resin which adheres to them is then scraped off. And Dr. McKinnon states that in Nepal the resin is gathered on the backs of the native coolies. Dr. Royle says, "The glandular secretion is collected from the plants on the hills by the natives pressing the upper parts of the young plants between the palms of their hands and scraping off the secretion which adheres."

†Derived fr m a memoir by Alexander Christison, J. B. S. E., "On Cannabis Indicæ, Indian Hemp."

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V. In the preparation of the electuaries, etc., butter is used as the means of separating the active principle; consequently these compounds are very apt to become rancid.

They are thus described by M. Charnac in the Annuaire de Thirap for 1846: 1. Preparations mixed with honey or melted sugar. 2. A more active form called haschich kava-mesk (musked drug), containing musk, essence of roses and almonds, of pasty consistence, and of the color of impure honey; the quantity used being the size of a walnut. 3. Two kinds are found at Smyrna, called Israel; the one a fine powder, the other a roll of firm mastic consistence. 4. A black, round kind has great aphrodisiac repute among the Fellahs, but in this case it is found that cantharides is added to increase the effect.

At Cairo the compound from which the various conserves are prepared is thus made. Equal parts of well-sifted haschich, butter, and water are put in a vessel on the fire; after some boiling, the water is dissipated, the residue is twisted in a cloth to isolate the fatty matter, and to this the different spices are added.

Haschich is to the Arabians what opium is to the Turks and Chinese. Hachach, signifying in Arabian drunkard, is the epithet applied to those who eat haschich.

The Arabians smoke the powdered plant, free from seeds, which contain fatty, disagreeable tasting matter, along with tobacco.

VI. Landerer describes a tincture of hemp used at Cairo, called chatsraky, made by infusing in spirit for three weeks, with a gentle heat, the varnish-covered bark sliced from the stems when the plants are in flower.

As the activity of the preparations of hemp depends on the presence of a resinous varnish on the leaves, and consequently, as the most active of these is found to contain the largest quantity of resin, it becomes a matter of great importance to decide upon the proper period for collecting the plant.

M. Gastinell, an apothecary at Cairo in 1848, states that he found the active powers of hemp to depend on a resinous matter which forms on the leaves as the seeds ripen. Again; M. de Charnac observes, that in Egypt the tops of the plants are used at the end of flowering, but before the complete maturity of the seeds. And Mr. Jameson, Director of the Botanic Gardens a Saharumpore, makes a like statement in a letter dated 17th August, 1849. As this letter contains an interesting account of hemp in that part of India, it has appeared to me to be well worthy a place in this essay. He says:

"In Kimaon and Gurhwal cannabis is grown in large quantities, partly in order to obtain its resinous secretion, and partly for its bark, from which a strong, coarse cloth called bungila is manufactured; it forms the dress of the poorer inhabitants, particularly through Gurhwal. It is sown in July and October. From the female plants only the churrus is procured. Towards the beginning or middle of October the seeds begin to form, and when in this unripe state the upper part of the plant is pressed between the palms of the hands, it deposits upon them a yellowish green secretion, which is scraped off with a

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blunt knife; this is the well-known churrus. From the male plant bhang and cath are prepared. Bhang is prepared by drying the leaves and other parts of the plant, both male and female, and is thus used: A small quantity is put into a mortar with a little water and pounded, the refuse water being thrown away; an additional quantity of water is then added, from half a pint to a pint, depending upon the strength required, and well mixed; it is then strained through a fine cloth, the residue thrown away, and the liquid is ready for drinking, a wine glassful or more being taken at a time. Gungah is the this preparation, and the product of the upper portion of the stem, that in about 1½ feet; it is used in the hookah to smoke; this also applies to the churrus. The gangah is carefully dried and mixed with an equal quantity of tobacco, and well rubbed together in the palm of the hand; it is then ready for the hookah, We have thus three preparations:—1, churrus; 2, bhang, or subzi; 3, gangah, or ghangah. The first is only prepared on the hills, and the two latter are common to both hill and plain, but bhang is principally prepared in the latter. At Bhaeit, about 17 miles from Saharumpore, it is prepared in large quantity, and is subject to heavy duty; yearly from 40,000 to 50,000 maunds are produced (a maund is equal to 80 lbs). The reason why the churrus is not prepared in the plain is because the plant does not secrete the resinoid principle, showing that its secretion is connected with climate. But still, the plants are identical in external matters, and you will, I think, find that the European and Indian plants are also identical. In order to ascertain the fact, I send you a small packet of hemp seeds procured at one of the Gurhwal villages, where it is grown in vast quantity. In your letter you say that the active principle forms on the stems and leaves; this is not the case, as it is only procured when the seeds are in an unripe state; attempt to procure it before this period, and none will be forthcoming. It will appear strange how ignorant natives can distinguish female from male plants. Were you to see the plant growing, your surprise would soon be removed; the female plant when ready for making churrus has at its upper part a 'bunchy' appearance, whereas, the male plants have become by this time mere stems and leaves, the flowers also having fallen off.

"In October, in crossing the Himalayas from Almorah to Missouri, I have passed through dozens of villages 600 to 800 feet above the level of the sea, and seen hundreds of men, women, and children all employed in making churrus. The plant grows to a height of from 10 to 14 feet."—*London Pharm. Journal.*

RHEUM OFFICINALE.

BY PROFESSOR BAILLON.

The following information respecting the new species of Rheum, which is now considered to be the true origin of the officinal rhubarb, has been supplied by Professor Baillon to M. Regnaud for insertion in a new edition of Soubeiran's Traite de Pharmacie:*

*L'Union Pharmaceutique, Vol. XV., p. 21.

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"Besides the Rheum Rhaponticum, which yields the Rhapontic Rhubarb, Linnæus recognized from species of the genus Rheum, to which have successively been referred the origin of the true rhubarbs of China and Russia. These were the Rheum Rhabarbarum (afterwards named R. undulatum by Linnæus himself), R. compactum, R. palmatum and R. Ribes. The latter, to which has been attributed the origin of Persian Rhubarb, or rather of the products which are received through Persia, has never been more than a culinary herb. As to the three other species, they have all contributed (from the root) certain European and native rhubarbs.

"A species, more recently discovered in India, R. Emodi or R. australe, has, like the preceeding, been considered to yield the Chinese and Russian Rhubarbs; but it would appear that it only produces a kind peculiar to India.

"As to the true plant, a native of Thibet, which furnishes to commerce both the Russian and Chinese rhubarbs, it has only been known since 1867, in which year M. Darbry de Thiersant, consul-general of France at Shanghai, procured from Thibet some stalks of the species which yields this valuable drug, and which, cultivated in the garden of the Faculty of Medicine at Paris and in the Vallee de Montmorency by M. Girandeau, have received from M. H. Baillon the name of Rheum officinale. It is a very large species, exceeding a man in height, and remarkable for the considerable development of its inflorescence. The flowers are whitish, having a very deeply concave receptacle, with a marked perigynic insertion of the stamens, which in other respects resemble those of all the genus Rheum. The gynæcium is inserted profoundly in the most depressed portion of the receptacular cavity, and the edges of this cavity are furnished with well-developed unequal glands of a beautiful green color at their summit. The leaves of this species answer perfectly to the indications formerly given by Bokharian and Chinese merchants to Pallas and others concerning the true officinal rhubarb plant, namely, that the leaves have a limb of delicate green color, in shape like an open fan, and also as analogous as possible to that of the leaves of the Ricinus communis. It is by this that the species is especially distinguished from R. palmatum, to which more than any other the origin of this medicament has been referred in recent times, upon the authority of Guibourt. But the leaves of the latter are whitish, unequally trilobed, and more or less pointed at the top. The R. officinale, however, belongs to the same botanical section as R. palmatum, as well as R. hybridum and R. dentatum, which are different plants, but have the same nervation. Here the nerves diverge at starting from the base of the limb; they are then palmate, and the two lateral nerves are destitute on the outside, for a certain distance from their base, of all parenchyma. Above this point the base of the parenchyma forms a kind of auricle, which renders the limb markedly cordate at the base. The dimensions of the limb extend to nearly a metre in each direction; it is, however, a little broader than it is long, and the petiole is about the same length. In the plants that have been raised, some leaves have been noticed which were more than a metre and a half long. Their edges are un-

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equally divided into triangular lobes a little unequal among themselves, and the nerves ramified and prominent beneath, are in this species, together with all the surface of the parenchyma, entirely covered with a fine white down. When the plants become fully developed it has scarcely any roots, for these are gradually destroyed, and the plant draws its nourishment from the soil only by small adventitious roots which could not be employed in medicine. But, contrary to the other species enumerated and of which the root can be prepared and employed, this develops above ground a stem and cylindro-conical branches, 20 or 30 centimetres high, and of the thickness of an arm or leg. These are the only portions which, cleansed from the so-called bark. divided traversely and longitudinally, and properly dried and prepared, can be used in medicine. They bear leaves, and after the fall of these, there remains on the surface only the brown, dried base of the petioles, together with the remains of the ochrea; these vestiges together constitute the pretended bark.

"In the axil of the aërial leaves there is necessarily a bud. These acquire frequently a considerable development, and are elongated into leafy branches; such is the cause of the ramification of the aërial portions of this plant. Each of these buds, detached at a suitable season, will in its turn easily take root from its base, and may thus be used to multiply the plant. Since each of these buds sends off a collection of cellular, fibrous and vascular elements, which it directs obliquely across the true fleshy, spongy bark, towards the ligneous axis of the branches. The presence in the true Thibet rhubarb of the stellate spots which are seen in sections, answers, therefore, precisely to the morphological nature of the portion employed as a medicament."—*London Pharm. Journal.*

EXCERPTA FROM SCANDINAVIAN SOURCES.

TRANSLATED BY C. GILBERT WHEELER.

Fusel-oil in alcohol, or spirits may be readily detected on adding an equal volume of pure ether and the same quantity of water. After a short interval the ether will be found to have collected all the fusel-oil, and on evaporation, at ordinary temperature, the latter may be readily recognized by its appearance, odor and the usual chemical reactions.

A strcng and quickly hardening cement suited to delicate objects may be obtained by dissolving two parts of amber in three parts of bisulphide of carbon. The cement may be applied with a small brush, hardens almost immediately, and is unaffected by nearly all solvents.

Phosphorescent photographs. Photographs are now produced which in the dark emit a beautiful green or purple light, appearing entirely self-luminous. Their production depends upon the phosphorescent properties of certain compounds, such as the sulphides of calcium, barium and strontium. The method of preparing these pictures is in substance, as follows:

The albumenized sheets are spread, unprepared side down, upon

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thoroughly moistened bibulous paper, whereby the albumen surface soon becomes glutinative. The phosphorescent compound selected is then finely pulverized and sifted over the albumen paper, care being taken to uniformly distribute it. This must be performed in the dark room.

As a negative for printing the ordinary ones on glass may be employed. The action of the light is complete in a few seconds if solar light is employed; magnesium light requires somewhat more time. In the dark the lights of the picture are recognized by their peculiar pale luminosity, the shaded portions by their dark appearance. These pictures lose their phosphorescence after some time. However, this can be prevented in the following manner: Paraffin is carefully melted upon a glass plate, forming a thick layer. By means of a knife the layer of paraffin is separated from the glass. The latter is then warmed and sifted over with the phosphorescent powder. Upon the first glass a second is now laid and the whole gently warmed, thus causing an air-tight adherence of the two plates. With these the process is conducted as with the albumenized paper.

Mineral Caoutchouc, or a variety of Elaterite.

In the southern part of the colony of Adelaide in Australia there has been discovered a variety of solid carbo-hydride to which, on account of its appearance and elasticity, has been given the name of Mineral Caoutchouc. It is found near the surface in an arenaceous soil, and containing about 82 per cent. of carbon, is well adapted to the manufacture of gas and also, as is believed, to the preparation of paints. Further investigation into the properties of this interesting substance appears to be quite desirable.

Chemical Tests for cotton, *woolen* and other fabrics.

The starch or other size is first removed by boiling in water, the samples then after drying are immersed from one-half to two minutes in cold sulphuric acid. Afterwards they are placed in water, in which the cotton slowly but completely dissolves; the linen partially dissolves, the woolen specimens do not at all dissolve.

A Lady Pharmacist has passed a severe examination in the prescribed branches at Montpelier, France, and has been authorized to open a drug store in that city.

COMPOSITION OF JUNIPER-BERRIES, ACCORDING TO E. DONATH.

Water	29,44	per cent.
Essential Oil	0,91	"
Formic acid	1,86	"
Acetic acid	0,94	"
Malic acid, (combined)	0,21	"
Oxalic acid	traces.	
Fat, similar to wax	0,64	"
Green resin, (from ethereal solution)	8.46	"
Hard brown resin, (from alcoholic solution)	1,29	"
Bitter substance, called by Steer *Juniperin*	0,37	"
Pectin	0,73	"

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Protein substances	4,45	"
Sugar	29,65	"
Cellulose	15,83	"
Mineral substances, weighed as ashes	2,33	"
—*Neues Jahrl. fuer Pharmacie.*	97,11	"

EDITORIAL.

We have been honored by Dr. E. Méhu with the following communication in reply to the charges made by Mr. Rother in the January number:—

PARIS, Feb. 8th, 1874.

VERY HONORED COLLEAGUE:—" *The Pharmacist* " for January, 1874, duly reached me through the Société de Pharmacie de Paris. For this favor thousand thanks, as it permits me to give you the desired information.

In the Journal de Pharmacie et de Chemie for January, 1873, I gave an account of Mr. Dragendorff's paper on Cantharidal plaster, and to it attached the notice of an article entitled *Cantharides*, republished by the *American Journal of Pharmacy*, Nov., 1872 from *The Pharmacist*, August, 1872.

This publication seemed to me to hold a just claim of priority, and I did not dream to raise a tempest on the part of Messrs. Delpech and Guichard, who had claimed the credit of having suggested the use of alcohol in the preparation of Cantharidate of Potassium; this they had published in a memoir in 1870. (Journal de Pharmacie et de Chemie, 4 E. Sirie, 1870, tome 40, page 312.)

Their claim having been disputed by me, they appealed to the Société de Pharmacie for its corroboration. I allowed them all advantages of the controversy, until I had secured all the facts and original documents bearing upon the subject; these I submitted to the Societe de Pharmacie, and irrefutably established that Messrs. Dragendorff and Masing employed alcohol in the preparation of Cantharidate of Potassium in 1866, and that the memoirs of Messrs. Delpech and Guichard contained no new facts upon which they can base priority or originality.

The Journal de Pharmacie et de Chemie (April, 1873, p. 308) contains the following:

" In reference to the claims of priority brought forward in the last session of the Société de Pharmacie by Messrs. Delpech and Guichard, relating to the employment of alcohol in the preparation of Cantharidate of Potassium, Mr. Mehu declares himself authorized by Mr. Dragendorff, professor of Pharmacy in the University at Dorpat (Russia) to demand for himself and his assistants, Messrs. Bluhm and Masing, the discovery of Alkaline Cantharidates, their preparation, their analysis, etc. Mr. Mehu states that the application of Alcohol in the preparation of Cantharidate of Potassium is distinctly indicated in the thesis of Mr. Masing (*Die Verbindungen des Cantharidnis mit anorganischen Basen*, Dorpat, Dec. 6th, 1866, page 9,) and in the memoir of Mr. Dragendorff, (*Pharmac. Zeitschrift fur Russland*, 1869). Chemists, instead of advising the use of alcohol, have noted its inutility and inconveniences, and consider water the more preferable menstruum. Therefore Messrs. Delpech and Guichard were wrong in claiming that they were the first to suggest the use of alcohol in the preparation of Cantharidates. With these facts and documents before it, the Societe de Pharmacie gave no support to Messrs. Delpech and Guichard."

I have inserted in the *Annuaire Pharmaceutique* for 1874, which is in print and will be issued soon, a resume of the history of chantharidates and their diverse applications according to the thesis and memoirs of Dragendorff, Masing, Rennard, Bluhm, Radecki, etc. The following is proof of part of the article which has some bearing on this subject, and which I herewith forward to you in advance of the publication:

Extract from the *Annuaire Pharmaceutique* for 1874.

ON CANTHARIDAL PLASTER. (*G. Dragendorff*.

I. *Special Communication.* (*unpublished.*)

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II. *Pharmacist, August*, 1872, *et Journal de Pharm. et de Chemie, Jan.*, 1873.

"Mr. Rother has objected to the plaster-mass, (*See Annuaire Pharmaceutique* for 1873, page 171) in that it requires a weight of alkaline solution, triple that of cantharides, and a corresponding weight of chlorhydric acid, for its neutralization. According to Mr. Rother this mass is difficult to dry, and easily prone to mouldiness, which of course does not add to its vesicant action. To reduce the volume of liquid and prevent the development of mould Mr. Rother proposed to substitute for the aqueous solution of Mr. Dragendorff an alcoholic one.

According to Mr. Dragendorff this alcoholic solution is perfectly superfluous. If Mr. Rother has failed to produce a good preparation of Fly-Plaster, it indicates that he did not allow the powdered cantharides to imbibe the caustic solution of potassa sufficiently long, and that he conducted the dessication at too low a temperature. Mr. Dragendorff says, "during an interval of several months I prepared several times a very active cantharidal plaster after the following process: To each 20 grammes of powder cantharides I add 4 grammes of a solution of caustic potassa (sp. gr. 1.25) and enough of water to make a pulp. Then I heat this during two hours at 100 deg. c., saturate it with chlorhydric acid, and finally dry at 100 deg. c. There is no occasion for mould nor surplus of chloride of potassium. The cantharidine is completely set at liberty, the treatment lasts 24 hours for 400 grammes of the powdered cantharides and a product of remarkable activity is obtained."

What has been said ought to be convincing that I will gather and publish all documents conducive to truth, and will not omit to give credit to whom credit is due. I have never contested the advantages of the employment of alcohol which Mr. Rother proposed for the preparation of Fly-plaster, much less his right of priority concerning this subject which was published in *The Pharmacist* for August, 1872.

Concerning the *Citrate of Bismuth* permit me to say that this solution in ammonia (Liquor Bismuthi) has absolutely no employment in France, medical practice being almost exclusively restricted to Subnitrate of Bismuth. Several years ago, to please an old lady, I made some investigations with the purpose of substituting for the solutions of lead and silver, which she was employing habitually to darken her hair, a solution which should accomplish the same purpose without the poisonous qualities. I chose the metal Bismuth and after some experimentation, I employed the citrate. The result as to the color of the hair was mediocre, and I have long since given up the pursuit of these experiments, in this direction, but it induced me to continue my investigations for the purpose of working out a convenient process for obtaining a solution of bismuth of a definite strength and without acid reaction. Thus it is that I came to employ but one equivalent of citric acid for one equivalent of bismuth, that is to say, nearly equivalent weights of one and the other.

Mr. Rother published his observations on citrate of bismuth in September, 1872. I furnished my manuscript of the "*Annuire Pharmaceutique*" to the printer in Paris on the 15th of November, 1872. I have never seen the number of *The Pharmacist* which contains Mr. Rother's comments on the process of Mr. Wood, nor has there been any reprint of the same in any European journal with which I am acquainted; this certainly should excuse its oversight. As so much importance is placed upon this so seemingly trifling matter, it will be very agreeable to me to publish in France in the *Annuaire Pharmaceutique* for 1875 or le *Journal de Pharmacie et de Chemie* the resume of Mr. Rother's observations on citrate of bismuth if you will kindly furnish me the number of the PHARMACIST in which it appeared.

What I believe to be perfectly correct, and do here repeat (after a trial of not later than this morning) is that it requires but a single equivalent of citric acid to one of bismuth when pure bismuth and nitric acid are employed (see *Annuaire Pharmaceutique*). I have said that the solution of citrate of bismuth in ammonia is not precipitated by acetic acid, and I maintain this fact, although I should have added that after several hours standing crystals of citrate of bismuth appear, being more abundant the more acidified the solution is made. A solution of acetate ammonia of a slight acid reaction dissolves a large portion of dry citrate of bismuth; its stability I have as yet not determined. A soon as I shall have gathered all necessary information and facts upon this subject, "justice shall be done tho'

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the heavens fall." I beg, honored confere to accept the homage of my sentiments of high esteem and profound respect.

DR. C. MEHU.

TRANSACTIONS OF PHARMACAL COLLEGES AND SOCIETIES.

INTERNATIONAL PHARMACAL CONGRESS.

The meeting of the Fourth International Pharmacal Congress is to be held in the city of St. Petersburg, Russia, in August, 1874.

The following questions have been submitted for discussion:

"1. How far the personal responsibility of the pharmacist extends in executing the duties of his calling.

"2. What would be the best mode of organizing the Apothecaries' Committee of Revision.

"3. Is it necessary that the pharmacal professorship should be held by a pharmacist?

"4. Has not the time arrived for instituting an international pharmacopœia?"

We sincerely hope that the profession of this country will be represented at this international gathering of pharmacists, and that our representatives will present to the congress an invitation to meet in this country in 1876.

EXTRACTS FROM THE MINUTES OF THE ANNUAL MEETING OF THE CHICAGO COLLEGE OF PHARMACY.

The annual meeting was held in the hall of the College, 77 Dearborn St., on Wednesday, March 4th, at 2:30 p. m. The president, Mr. Thomas Whitfield, in the chair.

Minutes of the meeting of the College on Feb. 19th, and of Trustees meeting, same date, were read and approved.

Report of Committee on Cabinet and Apparatus. J. W. Mill, chairman, was read, showing many valuable donations to this department, among which were the portrait of Prof. John Attfield of London, thirteen doz. assorted sizes Flint Saltmouths, from Messrs. Whitall, Tatum & Co., of Philadelphia, an excellent drug mill from the Enterprise Manufacturing Co. of Pa., Philadelphia, a number of fine specimens of Materia Medica, from Messrs. Allaire, Woodward & Co., Peoria, Ill., a handsome set of botanical charts from Prof. H. H. Babcock, Chicago, nine specimens illustrating the process of the manufacture of glycerine from Messrs. Hartmann, Laist & Co., Cincinnati, O. On motion the report was received and placed on file.

The Committee on Deceased Members, N. Gray Bartlett, chairman, reported the death of J. H. Mead, who departed this life on the 10th of February. Mr. Bartlett spoke of the deceased in high terms and with great regret at his death.

The report of the Secretary was read, showing collections to the amount of $757.25., and expenditures amounting to $523.51. Amount due from members $180. On motion it was referred to the Finance Committee. The report of the Treasurer was read, showing receipts from all sources, amounting to $943.10; expenditures, $658.51; leaving

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a balance in his hands of $284.59. On motion, referred to Finance Committee.

The resignations of Geo. M. Hambright and Joseph M. Hirsch, were offered and on motion accepted, providing they had complied with the requirements of the by-laws.

On motion, Messrs. Wheeler, Sargent, and Bartlett, were appointed a Committee to devise a plan to interest a larger number of the city and country druggists in the college

The president, Mr. Thomas Whitfield, read his address, which was received with applause.

On motion a committee of three was appointed to consider the president's address and to report such suggestions as deemed advisable for the college to adopt. The election of officers for the ensuing year was then held with the following result:

T. H. Patterson, President,	E. H. Sargent,	Trustees.
W. F. Blocki, 1st Vice "	D. B. Trimble,	
N. G. Bartlett, 2nd " "	Thos. Whitfield,	
H. Biroth, Secretary.	J. H. Wilson,	
T. N. Jamieson, Treasurer.	J. C. Borcherdt,	
A. E. Ebert, Cor. Sec'y.	M. W. Borland,	
	M. E. Huyck,	
	J. W. Mill,	
	G. Buck,	
	C. G. Wheeler,	

Meeting of the Board of Trustees, Wednesday, March 18th, 1874.

The Meeting was called to order by the President, T. H. Patterson. Present, Messrs. Bartlett, Blocki, Borcherdt, Huyck, Jamieson, Mill, Patterson, Trimble, Wheeler and Whitfield.

The following committees were nominated by the president and confirmed by the Board:

On Rooms and Library—Thos. Whitfield, Geo. Buck, J. H. Wilson.

On Lectures—E. H. Sargent, C. G. Wheeler, J. J. Siddall.

On Deceased Members—N. G. Bartlett, K. A. Hunton, L. C. Hogan,

On Progress of Pharmacy—A. E. Ebert, H. Biroth, Chas. C. Fredigke.

On Cabinet and Apparatus—J. C. Borcherdt, D. R. Dyche, M. E. Huyck.

On Finance—W. F. Blocki, H. W. Fuller, D. B. Trimble.

On Business—M. E. Huyck, C. E. Clacius, H. W. Fuller.

On Examination—C. G. Wheeler, M. W. Borland, F. Mahla.

Applications for membership by L. C. Hogan, and E. L. Stahl, Jr., were presented, and a ballot being cast, they were unanimously elected.

Mr. Patterson presented a bill for balance of premium on Insurance amounting to $61.25. On motion it was ordered to be paid. On motion adjourned.

J. J. Siddall, Sec'y pro. tem.

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CHICAGO COLLEGE OF PHARMACY.

Meeting of the Board of Trustees, Saturday, March 7th, 1874.

The meeting was called to order by the President, T. H. Patterson. Present, Messrs. Bartlett, Blocki, Borland, Ebert, Mill, Patterson, Trimble, Whitfield and Wilson.

On motion, reading the minutes of last meeting was postponed.

The report of the Examining Committee was received and read, as follows:

"The following named candidates having passed a satisfactory examination, and complied with all requirements of this College, are recommended to the Board of Trustees for graduation: Charles M. Ford, Littleton Thompson, L. C. Hogan, Geo. H. Ackerman, Joseph Rosenthal, Edward L. Stahl, Jr. The report was adopted.

Three candidates having failed to reach the standard required in the examination were recommended for another opportunity of examination in June next."

On motion it was directed that an examination be held in June for the benefit of those having failed to pass. On motion adjourned.

J. W. Mill, Sec'y pro. tem.

THE ANNUAL GOMMENCEMENT OF THE CHICAGO COLLEGE OF PHARMACY.

The commencement exercises of this college were held in the the auditorium of the First M. E. Church on Tuesday evening March 10th.

This place was selected on account of its more central location and accessibility than the lecture room of the college. The very good sized audience seemed much interested in the proceedings, and everything passed off in creditable style. The president of the college, T. H. Patterson, on presenting the diplomas to the graduates, made a few terse and very appropriate remarks, after which Prof. D. B. Trimble delivered the address of the occasion, which was very interesting and comprehensive. Mr. Geo. H. Ackerman, on behalf of the class, made a brief response, expressing their hearty appreciation of the efforts of the Faculty in their course of instruction. The exercises were enlivened by excellent music furnished by the Great Western Light Guard Band, and altogether it was a very pleasant and successful commencement.

The following are the names of the graduates and the subject of their theses:

Charles M. Ford, ... Lacto Phosphates.
Littleton Thompson, ... Dilute Phosphoric Acid.
L. C. Hogan, ... Pink Root.
Geo. H. Ackerman, ... Specific Gravity.
Joseph Rosenthal, ... Poke Root.
Edward L. Stahl, Jr., ... Wild Cherry.

COMMENCEMENT OF THE CINCINNATI COLLEGE OF PHARMACY.

The commencement exercises of the Cincinnati College of Pharmacy, occurred at College Hall in Cincinnati on the 12th ult. The

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graduating class numbered eleven out of a total of seventy-two students in attendance at the college. There was a large audience and the addresses and responses were interspersed with music by the Newport Barracks Band. The feature of the occasion was the presentation to the president, Dr. J. F. Judge, of a set of Chamber's Encyclopedia, by the graduating class.

LOUISVILLE COLLEGE OF PHARMACY.

The annual meeting of the Louisville College of Pharmacy occurred on the 10th ult. After the minutes of the last meeting were read and adopted the president, Mr. C. Lewis Diehl, delivered his annual address. He briefly reviewed the transactions of the college from its origin to the present day, from which it appears that the Louisville College of Pharmacy was organized on the 10th of August, 1870, and in the short period of three and a half years has become established upon a firm basis, has organized a school of pharmacy which has just completed its third annual course of instruction, collected a considerable fund for the purpose of building a college hall, and has been instrumental in securing the passage of a law regulating the practice of pharmacy. (The main features of the law are given elsewhere in our columns.—Ed.)

The School Committee reported very favorably upon the condition of the School of Pharmacy, which, during the season just closed, was attended by twenty-six students, of whom five were examined and graduated.

A committee of five was appointed to aid the Local Secretary of the American Pharmaceutical Association, in perfecting the arrangement necessary for the reception of the association.

The election of the Board of Directors resulted as follows: E. Scheffer, C. Lewis Diehl, Vincent Davis, W. G. Schmidt, S. F. Dawes, Lee A. Beckham, F. C. Miller, W. W. Smith, J. R. McAfee, John Colgan, Ferd. J. P. Pfingst, —— Shafer. The meeting then adjourned.

The Board of Directors then assembled and elected the following officers: C, Lewis Diehl, President; E. Scheffer, First Vice President; Vincent Davis, Second Vice President; S. F. Dawes, Treasurer; F. C. Miller, Recording Secretary; W. G. Schmidt, Corresponding Secretary; J. F. McAfee, Curator.

The Board of Directors nominated ten members, four of whom were subsequently commissioned by the Governor as members of the State Board of Pharmacy, which is composed as follows: Emil Scheffer, of Louisville; John J. Frost, Lexington; Vincent Davis, Louisville; H. M. Ghilson, Paducah; John Colgan, Louisville; J. J. Younglove, Bowling Green; C. Lewis Diehl, Louisville.

SYNOPSIS OF THE NEW PHARMACY LAW OF KENTUCKY. PREPARED BY THE LOUISVILLE COLLEGE OF PHARMACY.

Section 1. *Be it enacted by the General Assembly of the Commonwealth of Kentucky.* It shall be unlawful for any person, unless a registered pharmacist, or registered assistant pharmacist in the em-

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ploy of a registered pharmacist, or unless acting as an aid under the immediate supervision of a registered pharmacist, or a registered assistant pharmacist, within the meaning of this act, to retail, compound or dispense medicines or poisons, except as hereinafter provided.

SEC. 2 Any person, in order to be a registered pharmacist or a registered assistant pharmacist, in the meaning of this act, shall be either a graduate in pharmacy, a practicing pharmacist, or a practicing assistant in pharmacy. Graduates in pharmacy shall be such as have obtained a diploma from a regularly incorporated college of pharmacy. Practicing pharmacists shall be such persons as, at or prior to the passage of this act, have kept, and continue to keep, open shops for compounding and dispensing the prescriptions of medical practitioners, and for the retailing of drugs and medicines, and who shall have declared their intention, in writing, of keeping open shops for the compounding of prescriptions of medical practitioners and the retailing of drugs and medicines, and all other persons who, after the passage of this act, shall have declared their intentions, in writing, to open a shop for the compounding of prescriptions of medical practitioners and for retailing of drugs and medicines, and shall have passed a satisfactory examination before the State Board of Pharmacy. Practicing assistants in pharmacy shall be such persons as shall have served five years, immediately preceeding the passage of this act, in a shop or shops where the prescriptions of medical practitioners are compounded, and such other persons as have served three years apprenticeship in a shop or shops where the prescriptions of medical practitioners are compounded, and shall have passed a satisfactory examination before the State Board of Pharmacy.

* * * * * *

The following sections provide for a Board of Pharmacy—to consist of seven, appointed by the Governor, from the most skillful pharmacists in the State. After the first term of three years four of the number are to be selected from the Louisville College of Pharmacy.

Every person applying for examination and registration shall pay five dollars which is appropriated to defray the expenses of the Board.

Any person not a registered pharmacist who shall, after the passage of the act, keep open shop for retailing, etc., or who shall exhibit the title of registered pharmacist, or otherwise violate the provisions of the act, shall on first conviction be fined fifty dollars, and one hundred dollars for each subsequent conviction.

The act applies to cities of five thousand inhabitants and over.

ALUMNI ASSOCIATION OF THE PHILADELPHIA COLLEGE OF PHARMACY.

The annual meeting of the Alumni Association of the Philadelphia College of Pharmacy was held in the college hall, March 5th, 1874, at 3½ o'clock. At this meeting the business of the association was transacted. The president read his annual report. The following officers were elected to serve the ensuing year: President, William McIntyre, G. P.; 1st Vice President, Jos. P. Remnington, G. P.;

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2nd Vice President, Albert P. Brown, G. P.; Recording Secretary, Edwin Mc. C. Boring, G. P.; Tenth and Fairmount Avenue, Phila.; Corresponding Secretary, C. Henry Kolp, G. P.; Treasurer, Edward C. Jones, G. P.; s. e. corner 15th and Market streets, Philadelphia. Executive Board, Wallace Procter, G. P., James A. Parker, G. P., Richard V. Mattison, G. P., E. D. Paxson, G. P., and H. B. French, G. P. Trustee of Sinking fund, Thos. S. Wiegand, G. P.; orator, Lawrence Turnbull, G. P. M. D.

It was decided to admit *all graduates* to membership, restricting the right to certificates of membership and annual reports to those who contribute the sum of five dollars as heretofore, and as the objects of the association are good it is to be hoped that many will avail themselves of this privilege.

The public reception to the graduating class given upon March 10th, at 8 o'clock in the college was well attended; the ladies forming a large proportion of the number. The exercises consisted in the annual addres by Wm. C. Bakes, G. P.; calling of new members by the Secretary. Presentation of the gold medal to Edward S. Dawson, Jr., of New York. Handsomely engraved certificates for proficiency in chemistry, pharmacy, and materia medica were awarded to the following students respectively: T. B. Power, of New York; F. J. Kruell, Chicago, Ill., and Wm. L. Harrison of Virginia.

Joseph P. Remington, G. P., delivered an eulogy on the late Prof. William Proctor, after which a microscopic exhibition was held under the direction of Prof. J. M. Maisch and A. P. Brown, G. P. An opportunity was offered for social conversation and at a late hour all retired from one of the most interesting meetings ever held by the association. EDWARD Mc. C. BORING, G. P.,
Secretary.

THE ST. CLAIR PHARMACEUTICAL ASSOCIATION OF SOUTHERN ILLINOIS.

QUARTERLY MEETING, TUESDAY, MARCH 10TH, 1874.

The following resolutions, signed by seven members, were presented and unanimously adopted by the Association:

WHEREAS, Professor John M. Maisch of Philadelphia has rendered valuable services to the profession in general, and also such to our Association in special, and,

WHEREAS, Prof. John M. Maisch has devoted his whole life to the development and advancement of the profession and has labored earnestly for the same, therefore be it

Resolved, That we, the officers and members of this corporate body confer on him Honorary Membership, and

That the Secretary of the Association be authorized to communicate in due form the passage of these resolutions to Professor John M. Maisch.

A memorial was read, signed by Messrs. A. Rudolph, H. Steingœther, and A. G. F. Streit, setting forth therein the great utility of a preparatory college, (school of pharmacy) and offering themselves to teach the different branches, viz: Chemistry, Materia Medica, and

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Pharmacy, gratuitously; except the fees to be exacted from the apprentices to defray the incurring expenses. The memorial and propositions were thankfully accepted. These gentlemen were appointed members of the committee with full power to take such steps as are considered necessary. A. G. F. STREIT, PH., D.,
Secretary.

REVIEWS AND BOOK NOTICES.

Year Book of Pharmacy. Comprising abstracts of papers relating to Pharmacy, Materia Medica, and Chemistry, contributed to British and foreign journals from July 1, 1872, to June 30, 1873. With the transactions of the British Pharmaceutical Conference at the tenth annual meeting held at Bradford, England. 1 vol., 588 p. p.

This annual report on Pharmacal science presents the usual quota of valuable and interesting information of its predecessor.

The *Year Book* proper, edited by Chas. H. Wood, F. C. S., is a resume of the progress of pharmacy and its collateral sciences for the year 1872–73. It has some similarity to the report of the progress of pharmacy presented to the A. P. A., and incorporated into its annual proceedings. We regret to learn that the conference has lost the able services of Dr. Wood as editor of the *Year Book*, he having accepted the appointment as Quinologist to the East Indian Government. Mr. Siebold of Manchester has been appointed as his successor.

The second part of the volume comprises the transactions of the annual meeting of the conference, held at Bradford. It is replete with the interesting papers read and the discussions thereon, extracts of which we have already presented to our readers in previous issues of this journal. This boon of the publication of papers read at the annual meeting of the A. P. A. previous to their appearance in the official proceedings has as yet not been granted, although an earnest solicitation was made at the Richmond meeting for this privilege. The "Parent" can become *progressive* if it will follow in the footsteps of its "offspring" in this direction.

The *Year-Book* is a valuable addition to the library of every Pharmacist, and can be obtained from Prof. John Attfield, editor of the transactions, and general secretary of the conference, High Holborn, London, England, to whom all remittances should be made; the price is, postage prepaid, 10s. 6d.

The next annual meeting of the conference is to be held in the City of London, on August 5th and 6th, 1874.

Stephenson's Druggist's Directory. A complete and reliable list of the names of Wholesale and Retail Druggists in the United States and British Provinces. Carefully revised and corrected to January, 1874. New York. Wm. G. Stephenson & Co., William Street.

This would no doubt have been a useful book if the author had exercised more *care* in proof reading and correctness in compiling.

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No record is made of Drug Brokers, Analytical or Manufacturing Chemists, Manufacturers of Pharmaceutical Preparations, and Homœopathic Pharmacists, in the city of New York; no mention is made of drug-mills and manufacturing chemists in the city of Brooklyn. It is surprising that the author should have omitted the firms of his home, when he recorded those of cities of smaller size and greater distances. The letters *I* and *O* fared poorly at the hands of the compositor, and the proof reader neglected to make the corrections. In the list of Retail Druggists in the city of Boston we find the following: "Prof. G. F. H. Markoe (Col. Phys.)" Query: Since when has our friend and colleague changed his color and profession? We have only glanced casually over the pages, and from the numerous errors and omissions we have met are convinced that it has no claim to completeness, much less to correctness, and, as these are essential to that of a directory, we must say "it does not fill the bill."

The Puerperal Diseases. Clinical lectures delivered at Bellevue Hospital. By Professor Fordyce Barker, M. D., New York. D. Appleton & Co., 549 Broadway, 1874. 1 vol., 526 p. p. For sale by W. B. Keen, Cooke & Co., Chicago.

The volume, as a typographical work of art, is really a marvel of beauty. The type is large, the paper good, and it is excellently printed and bound, presenting as a whole the most handsome appearance of any book we have recently had the privilege of reviewing. In regard to the intrinsic value of the contents, we leave for the medical profession to determine its merits. We had expected that so able and eminent a teacher as Professor Barker, would have exercised more care in writing out the formulas of his prescriptions either in correct Latin or good English, as a mixture of the two languages found in this book is not creditable to a professional author.

An Introduction to Physical Measurements, with appendices on Absolute electrical measurement, etc. By Dr. F. Kohlrausch. Translated from the second German edition by Thomas Hutchinson, B. A., B. Sc., and Henry Richardson Proctor, F. C. S. New York D. Appleton & Co,, 1874.

The reputation of the author and of its translators is sufficient guarantee of the worth of this work to the scientific student. It is handsomly printed in large, clear type, and does credit to its publishers.

Medical and Pharmaceutical Notes. On the preservation of Hypodermic Solutions. By Edward H. Squibb. On Ergot and its preparations. On Rhubarb. On Physicians Pocket cases. On Alcohol and distilled spirits. On a general Apparatus Stand, Upright Condenser, Pinchcock and Burette Stand. By Edward R. Squibb, M. D., of Brooklyn, N. Y. Republished from the proceedings of the American Pharmaceutical Association for 1873. 66 p. p., with illustrations.

The Canadian Entomologist. Edited by William Saunders. Esq., London, Ontario. Published by the Entomological Society of Ontario.

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THE PHARMACIST.

VOL. VII. CHICAGO, MAY, 1874. No. 5.

DILUTED PHOSPHORIC ACID.

EXTRACT FROM AN INAUGURAL ESSAY BY LITTLETON THOMPSON.

The author, after detailing the chemistry of the officinal processes for the preparation of diluted phosphoric acid, says that certain peculiarities observed in dispensing different samples of phosphoric acid suggested an inquiry as to the character of the commercial varieties.

The phosphoric acid was determined as Pyrophosphate of Magnesium.

The examination, with the officinal tests gave the following results:

SPECIMENS.	H^3PO^4 per cent of	Ba Cl^2 TEST.	Ag N O^3 TEST.	Ag TEST.	H^2S TEST
No. 1.	10.3	No precipitate.	No precipitate	No action.	Whitish precipitate.
" 2.	9.56	No precipitate.	No precipitate	No action.	Whitish precipitate.
" 3.	11.76	Slight precipitate.	Trace.	No action.	Considerable yell'w precip
" 4.	13.24	Considerable precipitate.	Slight precipitate	No action.	Abundant yell'w precip

The officinal diluted acid contains theoretically ten and two-tenths per cent of tribasic phosphoric acid ($H^3P\ O^4$).

Number one is as near officinal standard as desirable, being only one-tenth of one per cent too strong. The second is as near officinal strength as is practically obtained from materials used in U. S. P. Number three is little over standard strength, but this is less objectionable than the presence of considerable quantities of sulphuric, hydrochloric and arsenic acids. Number four is still more unsatisfactory as it is nearly one-third stronger than it should be, and contained, besides, considerable arsenic. The use of Marsh's test afterward confirmed the presence of arsenic in abundance in numbers three and four; and only a mere trace in numbers one and two.

The practical difficulties connected with the U. S. P. process for

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the oxidation of phosphorus with nitric acid, are obvious enough.

When much heat is applied the action becomes too violent. If little heat is used the process is a long and tedious one. A portion of the phosphorus in both cases is volatilized and lost; and the wasting of some phosphoric anhydride (P^2O^5), formed by presence of air in dish, is quite apparent.

The phosphorus is liable to burn on the sides of the funnel, intensely heating it in a particular spot, and causing the fracture of the glass. The whole operation is of a disagreeble nature because of the nitric oxide fumes, and it can therefore only be conducted under a hood, or in the open air.

The second officinal process is easier to execute and more satifactory; but both are objectionable on account of the obstinacy with which the nitric acid remains in the concentrated liquid, even after protracted heat is used, and there is danger too of changing the tribasic partly back into the monobasic variety, by excessive application of heat, with the consequent loss of water. The concentrated acid is liable also to attack the dish in which it is heated, acquiring a pinkish color; due probably to the presence of permanganic acid, derived as has been suggested from the dish, by the joint action of the concentrated phosphoric acid and the oxidizing agent.

The acid as prepared by either of the officinal processes develops a stringy, organic product upon standing.

The first difficulty just mentioned may be overcome by applying a less intense heat, and avoiding too much concentration of the syrupy liquid; but this is apt to leave a contamination of nitric acid.

In fact I have never yet succeeded in obtaining a "syrupy liquid, weighing two ounces," that was "entirely free from nitrous odor;" but the liquid is nearly odorless, provided it has been frequently stirred, during its evaporation, in order to facilitate the escape of nitric residue.

The question arose, whether or not the use of nitric acid in the second officinal process, was not altogether unneccessary.

According to many authorities monobasic phosphoric acid, with tolerable rapidity, assimilates water, under a boiling temperature.

Maisch, however, found the operation tedious; (Amer. Jour. Phar. Sept., 1861) for, on boiling a strong solution of the glacial acid with water, one or two hours were required, according to the amount operated upon, before the solution ceased to coagulate albumin ; and it then, after neutralization with ammonium hydrate, gave a white precipitate; this still was the case even after the ebullition had been continued for several hours longer.

Yet, when he operated by boiling one drachm of glacial phosphoric acid to eight or ten fluid ounces of water, only twenty minutes had elapsed before albumin ceased to be coagulated; before this the liquid gave, after neutralization, a tolerably yellow precipitate, with argentic nitrate showing its partial conversion into the tribasic acid, at this early stage of the process.

According to Maisch, the glacial acid is not wholly changed into

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tribasic acid even after some hours of boiling, and he concludes that some tetra-basic phosphoric acid is formed during the process.

He observed moreover that the change from monobasic acid into tribasic, was faster as the temperature was increased.

When I operated with the glacial acid in the proportion of one of acid to two of water, heating the two together until solution had taken place, it coagulated albumin.

After boiling the solution for ten minutes, albumin was not coagulated, and after neutralization with ammonium hydrate, it gave a whitish-yellow precipitate, similar to that produced with tri-sodium phosphate.

A repetition of this experiment a number of times with the same results, led to the conclusion, that the change of the monobasic acid into the tribasic, was complete.

I next attempted the preparation of phosphoric acid by the action of sulphuric and oxalic acids on the bone phosphate; also by decomposing sodium phosphate by an equivalent quantity of sulphuric acid, adding subsequently alcohol to remove more completely the sodium sulphate. The first of these processes yielded an acid largely contaminated with oxalate of calcium, due to the solubility of this salt in phosphoric acid, and the second to the great expense due to the use of alcohol to remove the sodium phosphate. Therefor neither of these methods are practicable for general use.

A number of experiments in making phosphoric acid from phosphorus and nitric acid, led to the conclusion that a weaker acid and a higher temperature than that of the Pharmacopœia would be an improvement.

The retort was employed as suggested by Mr. Diehl, and with U. S. P. manipulations with phosphorous and nitric acid, but with unsatisfactory results.

Usually, when heat was applied, the phosphorus began to burn on coming in contact with the air present in the vessel, and one occasion, by adhering to the sides of the retort, caused its fracture as in the case of the funnel.

Now had the heat been raised so as to have replaced the air, by an atmosphere of steam, no burning of phosphorus within the vessel could have occurred; but the increased heat with the nitric acid only moderately diluted, would have brought about violent reaction, and the last state of affairs would have been no better than the first.

It was found that by operating with weaker nitric acid and the application of a higher temperature, a very decided improvement may be effected in the officinal formula.

The fact of the presence of considerable quantities of arsenic, in phosphorous as found in commerce, has been known for some time. And in reference to this knowledge, it seems strange that the framers of the U. S. P. did not so modify the process for dilute phosphoric acid as to eliminate arsenic from the product. Two of the four specimens of dilute phosphoric acid of the market examined by me were largely contaminated with this most objectionable impurity.

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It is therefore always neccessary in the preparation of the medicinal acid, to take means to free it from arsenic.

The foregoing suggestions are embodied in the following process:

Take of Phosphorus, 360 grains
Nitric Acid, 5 Troy ounces,
Distilled water, a sufficient quantity.

Dilute the nitric acid with twenty fluid ounces of distilled water, (instead of eight fluid ounces in U. S. P.) and place the whole in a tubulated retort of ample size. Apply sufficient heat, through the medium of a sand-bath, to cause ebullition of the liquid and the entire expulsion of air; then drop in one-half of the phosphorus, taking care to prevent its contact with the heated glass. Now abate the heat, if necessary to moderate the reaction which occurs, but keep up sufficient to preserve a constant atmosphere of steam within the retort, which will be accompanied by only a small amount of phosphorus vapor. When the reaction has somewhat subsided, add the remainder of the phosphorous, and when this has disappeared, place the liquid in a porcelain dish and evaporate, with frequent stirring, to not less than two troy ounces; and when cool, dilute this with water to twenty fluid ounces. Treat this liquid with hydrogen sulphide, let it stand twenty-four hours, filter and boil to expell all excess of hydrogen sulphide and finally make up measure with distilled water to twenty fluid ounces, and filter if necessary. The preparation obtained in this way was quite satisfactory.

The experiments already mentioned indicated that the monobasic acid is completely converted into the tribasic in less than thirty minutes, by simply boiling it with water alone, in the proportion already stated.

With these proportions of acid and water (one to two) a tolerably concentrated solution is made, which gives to it a higher boiling point, and in all probability causes the change to be thus rapid and satisfactory.

The glacial phosphoric acid can now be bought comparatively cheap, and obtained almost, if not entirely pure. According to an analysis by Prof. Prescott, the glacial acid of commerce, (Proc. Amer. Ph. Ass., 1872.) is excellent in quality; as the impurities consisted mostly of sodium phosphate, and that in very minute quantity, indeed —less than one twenty-fifth of one per cent. In only one specimen of six examined did he detect even a trace of arsenic. The other five were free from it entirely.

It follows therefore that the most desirable and expeditious way to prepare the medicinal phosphoric acid is from the glacial.

The use of the nitric acid with the subsequent evaporation and stirring of the liquid to free it of the unnecessary agent, is altogether ignored, in the following very satisfactory process producing a diluted phosphoric acid of officinal strength.

Take of Monobasic phosphoric acid, (glacial), one troy ounce.
Distilled water, two fluid ounces.

Place the acid and water in a flask and heat them together until dissolved, adding water to replace loss by evaporation; boil the liquid

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for thirty minutes, or until it ceases to coagulate albumin., and gives a canary-yellow precipitate with argentic nitrate, when neutralized with ammonium hydrate. Then dilute with distilled water to the measure of twelve and a half fluid ounces.

EXTRACT OF MALT.

BY JOSEPH ROHRER.

The following is the process I employ for the preparation of Extract of Malt:

Take of Coarsely ground Malt, 1 lb.
Distilled Water, 1 pint.

Macerate in a suitable vessel for 3 hours, then add 4 pints more distilled water at a temperature of 65° C. or 149° F., keeping the same at this temperature for an hour; then pour upon muslin strainer and set aside.

The residue left on strainer is again treated with 3 pints of hot distilled water and boiled for ¼ of an hour, after which it is removed from the fire and allowed to cool down to 75° C. or 267° F., then strained as before and both liquids poured together and kept at a temperature of 50° C. for half an hour. The reason for proceeding in this way is that the first strained maceration having but a temperature of 65° C., still contains some active diastase; the second strained fluid (decoction) contains mostly starch, so that mixing the two fluids together and keeping at a temperature of 50° C., or 122° F., the starch is converted into glucose and dextrine by the action of the diastase.

When the starch is all converted it can be determined by the well known starch test (dilute solution of Iodine). It is then evaporated to about two-thirds its volume, whereupon the albumenous substances will be coagulated. It is then filtered through paper and evaporated over water bath to the consistence of honey.

The following table gives the constituents of this Extract of Malt with percentages:

RESULTS OF ANALYSIS.

			Per cent.		Percent.
Phosphate of Sesquioxide of Iron	Fe_2O_3	=	0.1340	=	0.2530
	$P\,O_5$	=	0.1190		
Carbonate of Lime	Ca O	=	0.1386	=	0.2475
	Co_2	=	0.1089		
Phosphate of Magnesia	Mg O	=	0.1477	=	0.4355
	$P\,O_5$	=	0.2878		

100 grains of Extract yielded in dried substance 56.25 grains.

	Per cent. of dried substances.
$P\,O_5$	0.2115
Fe_2O_3	0.2382
Ca O	0.2460
Mg O	0.2620
P O	0.5160—— 1.4737 =per cent of phophates.

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NOTE ON POWDERING CAMPHOR.

BY GEORGE F. EBERT.

The methods and suggestions for powdering camphor, and retaining this refractory body in its powdered state, have not alone been numerous but curious. Among the processes offered I will cite that of resubliming by aid of heat. This was suggested in a paper read at the 19th annual meeting of the A. P. A. at St. Louis, 1871. Had the author of this paper given the volatility of camphor its due consideration he never would have claimed any advantage in obtaining the camphor in a very *dry* powdered state, as this certainly is the most favorable condition for its recrystalization.

Somewhat later the subject fell under the scrutiny of the "Pharmacal Writer of the Period," who, after a critical review of the different suggestions of his confréres, "capped the climax" by suggesting the sticky agency of that nasty and horrid of all substances, *castor oil.* Having still a faint recollection of our *castor-oiling* in infancy, when the "tempter," having failed to corrupt our infantile integrity with bribes of sugar plums, etc., our hands were firmly held, the nose ruthlessly seized and pinched, and without farther hesitation the sticky oil was poured down our throat. Although this forcible coercion had left a deep-rooted grudge against castor oil, we gave the suggested process a fair trial, and proved it, like many other processes suggested by this prolific writer, very nice in theory, but very poor in practice, the camphor acquiring an oily, rancid odor, and not accomplishing the desired object in retaining it in the powdered state. The problem being still unsolved, I gave the subject further thought and experimentation, and after many trials with numerous agents, I find the much used and much abused *Glycerin* the simplest and most efficient substance to keep camphor in a fine divided state. The following is the maximum quantity of glycerin which I have found necessary to overcome the adhesiveness of the particles of camphor for each other.

Take of Camphor, - - - - -	6 ounces.
Alcohol, - - - -	5 fluidrachms.
Glycerin, - - - - -	1 fluidrachm.

Mix the glycerin with the alcohol and triturate it with the camphor until reduced to a fine powder.

N-GAI CAMPHOR.

Two papers were read at the meeting of the Pharmaceutical Society March 4th, on a peculiar and little known kind of camphor, specimens of which had been received by Mr. Daniel Hanbury from Mr. F. H. Ewer, of the Imperial Maratime Customs of Canton. Mr. Hanbury stated that this N-gai camphor, as it is called, was much esteemed in China, and he quoted from a work of Rondot the following table of prices per picul (133½ lbs.) of the various kinds of camphor to show the degrees of value attached to them. They were:—

	Dollars.
Formosa camphor, - - - - -	25
Japan camphor, - - - -	30

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N-gai camphor, - - - - - -	250
Malay camphor, first quality, - - - - -	2,000
" " second quality, - - - - -	1,000

Mr. Hanbury found that the plant sent by Mr. Ewer was no species of *Artemisia*, though a member of the same order. It proved to be *Blumea balsamifera*, DC., a tall, coarse-looking, herbaceous plant of Eastern Asia, an abundant weed in Assam and Burma, and common throughout the Indian Islands. It is well known to emit when bruised a strong odor of camphor, and in Burma a crude camphor is even extracted from it. Many years ago a European named O'Riley purified some of this camphor and attempted to bring it into notice as an article of commerce.

It is probable that the *Blumea* is not the sole source of N-gai camphor, for, according to Mr. Ewer, the name N-gai is applied to designate several plants, including both *Labiatæ* and *Compositæ*. The camphor is used not only in medicine, but also in the manufacture of the scented kinds of Chinese ink. Mr. Ewer states that about 15,000 dollars' (3,000*l.*) worth is annually exported from Canton to Shanghai and Ningpo, whence it finds its way to the ink factories of Wei-chau and other places.

The chemical investigation of this camphor had been undertaken by Mr. Sidney Plowman. He found that the crystals of N-gai and Borneo camphor were almost identical, but these were very distinct from those of laurel camphor. A similar correspondence was found as regards the tension of vapor of the various kinds. The mean of two sets of experiments showed the following proportions:—Laurel camphor occasioned the depression of the mercurial column 4.5 millimètres; N-gai camphor 2.8 millimètres; and Borneo camphor 2 millimètres. The specific gravity of laurel camphor was found to be .995; that of N-gai camphor 1.02; and of Borneo 1.011.

The melting point (or rather, the mean of the melting and solidifying points) of laurel camphor was 177°C., of N-gai camphor 204°C., and of Borneo camphor 206°C.

Laurel camphor, exposed to a stream of washed but not dried gaseous hydrochloric acid, at the ordinary pressure and temperature, absorbed it rapidly, and in a few minutes became a colorless, perfectly transparent liquid. N-gai camphor under the same conditions absorbed the gas extremely slowly, and though kept in a constant current for several hours, did not absorb sufficient to become a fluid, but still remained in fragments, though surrounded by a small quantity of a colorless liquid. It seemed after the lapse of some time to cease to absorb more gas, for no further apparent effect was observed after a certain point was reached. Borneo camphor when treated in a like manner behaved in every respect similarly to N-gai camphor.

Gaseous hydrochloric acid, dried by passing through strong sulphuric acid, when passed over laurel camphor, quickly converted it, as before, into a colorless liquid. The N-gai camphor was affected by the dried gas as by the moist, but somewhat more slowly, while the Borneo was not visibly acted upon at all, even after the exposure to the stream of dried gas for many hours; but on removing it it was

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found that the grains adhered together, showing that some slight absorption had taken place.

Berthelot and Pélouze each state that Borneo camphor, when left in contact with moderately concentrated nitric acid, is converted into a floating oil, which, when added to water, deposits a body identical with laurel camphor. N-gai camphor, when left in contact with nitric acid of a specific gravity of 1.42 for an hour, was found to be changed into a yellowish floating oil with the evolution of dense, ruddy fumes. This oil, when separated, and added to water, with constant stirring, gave a deposit possessing the odor of laurel camphor, and this deposit, when collected, washed and dried by exposure in a bell jar over sulphuric acid, was quickly converted into a liquid by passing a stream of dried hydrochloric acid gas over it. It was impossible to perform any more experiments in this direction upon it, since the whole of the N-gai camphor at disposal was so extremely small that scarcely sufficient for this experiment could be used without giving up some equally important operations. It would, however, have been very interesting to have obtained sufficient of this deposit to have made an ultimate analysis of it, so as to have determined whether it had the same composition as laurel camphor.

Laurel camphor, when treated in a similar manner, with nitric acid, yielded an oil floating on the acid, without, or with very slight, evolution of nitrous fumes. This oil, when separated and added to water, yielded a deposit having a terebinthinate as well as a camphoraceous odor.

After describing elaborate experiments which had been carried out to ascertain the chemical compositisn of the specimen, the difficulties of which were much increased by the very small quantity (about half an ounce) available, Mr. Plowman concluded that N-gai camphor is isomeric with Borneo camphor; that is to say, it possesses the same elements in the same centesimal proportions, the same number of atoms in the molecule, and, as far as can be determined, the same chemical constitution, but differs in physical properties, viz., its much higher volatility, its perceptibly different odor, and somewhat greater hardness and brittleness. It has been omitted to mention that N-gai camphor has an odor closely approaching that of laurel camphor, but much less powerful, while Borneo camphor, in addition to its weak camphoraceous odor has a disagreeable peppery one also.

N-gai camphor may, therefore, like Borneo, be looked upon as a monatomic alcohol of the series $C_nH_{2n-3}HO$, viz., $C_{10}H_{17}HO$, the aldehyd of which is laurel camphor, $C_{10}H_{16}O$.

Mr. Moss said one other investigation, which would be very interesting, would be to ascertain the action of an alcoholic solution of N-gai camphor on the plane of a ray of polarized light. Common laurel camphor rotated the ray to the right, and so did Borneo camphor; this new variety might or might not have the same effect. If he understood rightly, Mr. Hanbury referred N-gai camphor to a composite plant, and it was known that from the volatile oil of feverfew flowers there was deposited a camphor, which, though it had precisely the same composition as laurel camphor, rotated the ray to the

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left. It might therefore be that the N-gai camphor, though it had the same composition as the Borneo, might rotate the ray to the left, so that in this one natural order (*Compositæ*) there would be two camphors, one bearing the same relation to Borneo camphor as the other did to laurel camphor.—*Chemist and Drnggist.*

ON CUCUMBER OINTMENT.

BY WILLIAM PROCTER, JR.

Reply to Query 24.—Is there no better method of preparing Cucumber Ointment than that now in use by beating the juice with fats?

The formula at present in use indicated in the query was originally published by the writer. It consisted in making a simple ointment of refined veal suet and purified lard, and beating this in a soft state with repeated portions of the strained juice of green cucumbers until by contact the fat had absorbed the odorous matter of the cucumber-juice, the aqueous portion of which is then rejected, the fat separated by a gentle heat, filtered, run into dry bottles with wide mouths and closely sealed.

The faults of the process are: 1st. The necessity of making the ointment in quantity in the cucumber season; 2d. The use of solid fat makes the necessary contact of the aqueous juice and fat more difficult, and involves the use of heat subsequently in separating them; 3d. The difficulty of completely separating the ointment from moisture so as to prevent it from moulding when kept without overheating it.

After some reflection on the difficulties here presented, it was determined to use a pure cold liquid fat as the agent for extracting the odorous matter of the juice, and afterwards to employ this odorized liquid fat to make the ointment as wanted in moderate quantities, it being presumed *à priori* that the solution would keep unchanged if closely sealed. The following experiments were undertaken in this direction:

Take of Cucumbers, well ground but green and fresh,..160 troy ounces.
Oil of Sweet Almonds,........................ 16 " "

Grate the cucumbers, without paring, on a tinned iron grater, express the juice, and strain it through a close cotton cloth. Put half the juice in a gallon bottle, add the oil, cork the bottle, and agitate them together at short intervals during several hours, let the oil rise to the surface, decant the exhausted juice and replace it by the remainder of the juice, again agitate freely and repeatedly, allowing twenty-four hours to elapse before setting it aside to separate. Then decant the exhausted juice and throw it away. (The decanting is most easily effected by fitting another cork, with a tube passing through it nearly to the bottom of the bottle, carefully inverting the bottle, and when the upper layer of oil, which is apt to be slightly emulsed, has separated, loosening the cork until the watery liquid has nearly all passed out.) Finally, separate the oily layer as much as possible from water, and pour it on a carefully prepared plaited filter,

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which, whilst folded, has been dipped in oil of almonds, drained and spread in a suitable funnel, observing to press the folded point a short distance into the neck of the funnel before pouring in the oil. The filtration proceeds regularly, a bright oily filtrate, having a decided odor of cucumbers, is obtained, and generally towards the last a little water, if much of the oily layer was emulsed when poured on the filter. This collects on the bottom and the oil can be nearly all poured off. Sometimes it is necessary to filter the last portion a second time in the same way.

It is of great importance to deprive the oil of all moisture to prevent change in keeping, and it should be perfectly transparent, and may be called *Oleum cncumides*, or oil of cucumber. Ten pounds of cucumbers yield easily a gallon of juice.

Cucumber Ointment.—The French pharmaceutists, who selected veal suet for this ointment, know that it has a special merit, fusing at 110° with a uniform bland consistence and if carefully rendered but little odor. To favor a moderate exposure to heat in the rendering of this fat it should be chopped finely, the rendered portion poured off from time to time, and the whole finally united by fusion.

FIRST FORMULA.

Take of	Cucumber Oil,	2 troy ounces.
	Prepared Veal Suet,	4 " "
	White Wax,	½ " "

Melt the suet in a porcelain capsule, add the wax previously well divided, and heat gently at a temperature not exceeding 130° F. until the wax is dissolved, then add the cucumber oil and stir constantly until it thickens on cooling, when it should be put in suitable jars for dispensing whilst yet soft and covered with sheet gelatin.

As thus prepared, cucumber ointment is nearly white, has an agreeable odor of cucumbers, and is perfectly smooth and homogeneous in consistence.

SECOND FORMULA.

Take of	Cucumber Oil,	2 troy ounces.
	Oil of Almonds,	3 " "
	Spermaceti,	1 " "
	White Wax,	120 grains.

Dissolve the spermaceti and wax, shaved fine with a knife, in the oil of almonds previously heated to 130° F. with constant stirring, then add the cucumber oil after removal from the fire, and stir constantly until it thickens on cooling, when it should be prepared for dispensing as above, or put in a single jar as desired.

Thus made, the consistence of cucumber ointment differs from that made with suet, being more like rose-water ointment, than which is keeps much better, being free from moisture. If put up in small glass jars these should be kept from the light. Samples of cucumber oil and of the ointment made by each formula are submitted.—*Proceed. Am. Pharm. Association.*

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DISINFECTANTS, ANTISEPTICS AND DEODORIZERS.

FROM A PAPER BY A. W. MILLER, M. D., PH. D.*

The above terms appear to be regarded by many as being almost synonymous in their meaning, and consequently they are freely interchanged.

Inasmuch as each of them indicates a different action and applies to a special class of substances, it may further scientific accuracy to define the peculiar signification of these words with greater precision.

A deodorizer, deodorant, or antibromic, is evidently a body which has the property of destroying offensive odors, whether it be by chemical action or by merely absorbing fetid gases.

An antiseptic is a body which prevents or checks putrefaction.

The word disinfectant, the most popular term of the three, applies literally only to those agents which are capable of neutralizing morbific effluvia.

Dr. Squibb has proposed the new word, *Azymotic*, contracted from the French *Antizymotique*, in order to express the peculiar effect of carbolic and cresylic acids on those low organic forms whose life is intimately connected with fermentation.

Charcoal and dry earth may be given as examples of simple deodorizers; they are disinfectants only in so far as they prevent the escape of morbid particles when they mechanically enclose them. They have neither antiseptic nor asymotic properties, since, according to Crace Calvert's experiments, charcoal positively favors putrefaction and the production of vibriones.

Cresylic and carbolic acids may possess disinfectant, antiseptic and azymotic properties to an eminent degree; but they are certainly not deodorizers, though they frequently disguise or mask an unpleasant odor by their own inherent abominable stench. Superheated steam or an elevated dry temperature is perhaps the most reliable disinfectant that we possess. Both are also azymotic, as they destroy the vitality of the organic forms on which fermentation depends; but they have very slight antiseptic effect, and as they have no influence toward fixing or decomposing offensive gases, they cannot be regarded as deodorizers.

We see that bodies, which are usually collectively called disinfectants, may possess but a single one of the four qualities enumerated; more frequently they have two of them and sometimes three, but rarely if ever the entire four.

Special attention is called to the action of Sulphate of Quinia, which, while not interfering with vibrio life, completely arrests the growth of fungi. As quinia is as near a specific for intermittent fever as any that we possess, it seems probable that this disease is caused by the introduction of the germs of low vegetable forms into the system. The prevalence of intermittent fever in marshy districts contrasted with its rarity in high and dry regions, seems to be another argument to strengthen this theory.

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* Condensed from the Amer. Jour. of Phar.

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Eckstein, an apothecary of Vienna, states that the result of his experiments convinced him that chlorinated lime is the most useful agent for deodorizing cess-pools, privy-wells, and excrementitious matter generally. The rapidity and energy of its decomposition has so far proved an obstacle to its regular employment, as the eliminated chlorine vapors seriously incommode the respiratory organs of those who frequent the localities where it has been applied. In order to overcome this objection, Eckstein conceived the idea of employing a cover of a material which is but slowly acted upon by lime. He found a bag made of parchment paper to fulfill these indications in the most convenient manner. When such a bag is thrown into a well it remains in the spot where it has been deposited, as it is too heavy to be washed away by the draining. As it is constantly surrounded by liquid it has a local action, which seems to consume the chlorine as fast as it escapes.

The results are given of similar investigations which have recently been instituted in the Official Chemical Laboratory for Public Hygiene of Dresden, in Germany. Many of the so called disinfectants were studied in reference to their effects in deodorizing the liquid of manure-heaps.— Chlorinated lime in conjunction with sulphuric acid was found to be the most powerful, so the value of this was taken as a standard, being numerically expressed by 100.

The results were tabulated as follows:

Chlorinated lime with sulphuric acid,	100
Two parts chlorinated lime with 7 parts iron sulphate,	99
Calcium sulphate with 7 parts iron sulphate,	92
Carbolic disinfecting powder,	85.6
Slacked lime,	84.6
Alum,	80.4
Iron sulphate,	76.7
Chloralum,	74.
Magnesium Sulphate,	57.1
Potassium permanganate with sulphuric acid,	51.3

HOMŒOPATHIC PHARMACY.

BY BENJAMIN LILLARD.

Homœopathic pharmacy was first practiced in Leipsic, in the year A. D. 1776, by Samuel Hahneman, the founder of the homœopathic practice of medicine, who was born in Meissen, in the year 1755. The number of medicines originally consisted of about two hundred, which has been very much increased by the addition of new remedies.

Homœopathic pharmacy of to-day, according to the Universal Homœopathic Pharmacopœia, published in Leipsic last year, in German, English and French, each page being equally divided between the three languages, comprises some nine hundred and twenty-one medicines, sixty-five of which are of animal, and two hundred and thirty-seven of mineral origin. Among them may be mentioned as well known in our pharmacies: musk, cantharides, aloes, assafœtida,

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camphor, sulphate of quinia, ipecac, opium, rhubarb, ergot, oil of turpentine, alum, nitrate of silver, arsenious acid, borax, iron, mercury, lead and sulphur. And among those peculiar to their practice, yet in common use, may be mentioned sepia cuttle-fish ink, burnt sponge, bee poison, lachesis, poison of the lance-headed viper, poison oak, metallic copper, coffee, and nitroglycerin.

Homœopathic medicines are prepared in mother tinctures and triturations; the former are designated by the letter O, with a horizontal line through the centre, and are if of vegetable origin, with few exceptions, such as nux vomica, rhubarb and cinchona, prepared from the fresh living plant, animal, or drug, the proper time and mode of collecting being generally given under each article. The plant or drug is to be "cut up with a well-polished steel knife, free from rust, on a very clean chopping-board, then minced as fine as possible with an equally well-cleaned mincing-knife." Dry drugs are ordered in fine powder. Mother tinctures of succulent plants are made by "expressing in a new piece of linen, the juice mixed with equal parts of alcohol, well shaken, and after keeping in a cool dark place eight days, filtered." Plants only moderately succulent are moistened with two-thirds their weight of alcohol before expression. The others are prepared by macerating in alcohol in the proportions of one to two, and one to five parts alcohol, macerating eight days, shaking twice a day, and filtering.

From the mother tinctures, potencies by the centesimal, and dilutions by the decimal scale are prepared; they are directed to be made in a room protected from the direct rays of the sun. The number of bottles to be used are labelled, and their corks marked with the name and number of the preparation they are to contain, and should be large enough to hold twice the quantity to be made, so as to allow room for shaking. To the first potency one drop of the mother tincture is put in the bottle marked 1‖c, and ninety-nine drops of alcohol by measure, about 50 grains or 46 minims is added. It is then shaken with ten vigorous jerks of the arm. For the second, marked 2‖c, use one drop of the first, and ninety-nine of alcohol as before. For the third, marked 3‖c, one drop of the second and ninety-nine of alcohol, and so on. They are sometimes carried as high as the thousandth, although the thirtieth is the one generally used. It is natural to suppose, that it would be a tedious process to begin at the first and make the thousandth potency. And it is not strange that the inventive genius of man should have at various times instituted different plans to secure a similar result by a shorter way. What these modern improvements are we do not know, as they have generally been kept secret. The Pharmacopœia, however, gives no uncertain directions concerning them. "In the face of these plain directions of Hahnemann, which could not have escaped any one who had read and studied the Materia Medica, it is almost incomprehensible that persons should still sell preparations as high potencies, which are made by a secret process, not at all events according to Hahnemann's directions, and thus really in antagonism to them. This nuisance should be really banished from homœopathy, like the proposals of some pharmaceu-

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tists, who occupy themselves with the problem of preparing high potencies, under the erroneous notion that no directions exist."

The dilutions, sometimes called low potencies, are prepared after the same manner, using ten drops of the mother tincture and ninety of alcohol for the first, marked 1‖d or 1‖x. The second, marked 2‖d or 2‖x, is prepared by adding to ten drops of the first, ninety of alcohol, and so on, shaking at every dilution as in the potencies. The third dilution is the one generally used.

The liquid potencies and dilutions are used for medicating globules, which are small pills of pure cane sugar. They are prepared in about ten sizes, the smallest, called number ten, being about one-fourth the size of a millet seed, and gradually increasing to number eighty, the largest, which is about three-tenths of an inch in diameter. The size of a globule is determined by laying ten of them side by side, and the number of millimetres they measure is taken as the number for that particular size. Number ten, twenty-five and sixty are mostly used; number ten almost exclusively for high potencies, and numbers twenty-five and sixty for dilutions. The globules, sometimes called pellets and pills, are medicated, by adding a sufficient quantity of the mother tincture dilution or potency to moisten them thoroughly, care being taken not to add too much. The bottle should not be more than two-thirds full of the globules, and after shaking until they are all uniformly moistened, turn the bottle upside down for about twelve hours. The cork is then loosened a little to allow any liquid in the neck of the bottle to escape, and in a few days they are dry and ready for use.

Triturations are prepared in a warm and dry atmosphere, by putting one grain of the medicine, and one-third of ninety-nine grains of sugar of milk, in an unglazed china mortar. "The whole is mixed by stirring it for a few moments with a china spatula, and then worked with the pestle with some force for six minutes; afterwards, to mix it well, it is scraped together for four minutes, from the mortar and from the pestle, which is also unglazed. This done, the whole is a second time worked up with equal force for six minutes and scraped afterwards together, as above, for four minutes. Then the second third of ninety-nine grains sugar of milk is added, and the whole subjected exactly to the same manipulations as above; lastly, the remaining thirty-three grains sugar of milk are added, and the whole quantity is once more twice worked with the pestle for six minutes, and twice scraped together for four minutes. This is the first trituration potency. To prepare the second trituration, one grain of the first is added to a third of ninety-nine grains of sugar of milk, and the same process then gone through as with the first trituration; in like manner the third and other triturations are prepared. The triturating must be done with force, yet not so much so that the sugar of milk shall, by adhering too strongly to the mortar, not be removable within the four minutes."*

The decimal triturations are prepared in the same way, only using

* Pharmacopœia Homœopathica Polyglottica, page 34.

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ten grains of the medicine, and ninety of sugar of milk. The third centesimal and sixth decimal triturations are converted into liquid potencies and dilutions, by dissolving in water, so as to make the fourth centesimal and seventh decimal preparations, which are then made into the fifth centesimal and eighth decimal with alcohol; others are then made in the usual way using only alcohol. The metals and insoluble drugs are generally used in the form of trituration..

The first centesimal preparation is the same as the second decimal, the second centesimal as the fourth decimal, the third centesimal as the sixth decimal, and so on. The centesimal scale was the one originally used by Hahnemann; the decimal having been introduced of late years, and is probably more used than the other at the present time, or at least in this country. The Pharmacopœia directs that where none is mentioned, the centesimal should be used.

"Mortars for powdering hard substances of other metals than iron, well polished, and triturating vessels of any metal are not allowed. Spatulas should be of horn, bone or china. No metal funnels are allowed. Scale pans should be of horn or glass, and not of metal." Minute directions are given for keeping the utensils clean. "New ones must be thoroughly cleansed before using. Bottles and vials are washed twice with rain-water, and rinsed with distilled water, and dried by heat. Corks are washed in a hair seive with warm water. China vessels are repeatedly scalded in boiling water, and wiped dry each time. The press is washed with cold and afterwards with hot water, and dried. Bottles and vials once used for a medicine are never used for any other." In some pharmacies a separate mortar is kept for each drug to be triturated. Cerates and plasma, though not "officinal," are occasionally employed. There is no established or generally accepted rule for their preparation, the proportions and mode of preparing varying in different localities. Cerates may be made from the dried material in the proportion of one part to ten of a cerate, made of one part white wax, and four of lard. Arsenic, corrosive sublimate, and similar articles are used in the proportion of one to fifty. Those most employed are æsculus, calendula, hamamelis, urtica and arnica.

Homœopathic medicines should be kept in clean bottles, in a separate department to themselves, well protected from sunlight, dust, smoke and smells. Those that are apt to be injured by strong light should be kept in yellow bottles.

Theoretically, the medicines are never mixed, each one being always given by itself, although they often give two alternately every ten or fifteen minutes.

As a general rule the physician prepares and dispenses his own medicine. In the larger cities there are "homœopathic pharmacies," or stores devoted exclusively to homœopathy, as they keep, beside medicines, books, cases, instruments, dietetic preparations, and appliances. In cities not large enough for a separate pharmacy, they are generally kept and dispensed at the regular stores. There are now about twenty-two regular homœopathic pharmacies in the United States, situated in the largest cities, four being in New York, three in

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Chicago, and two in Philadelphia and St. Louis. They are mostly large manufacturing and importing houses, and have a jobbing and wholesale trade, supplying about one thousand regular druggists, who to a greater or less extent deal in them. Physicians generally obtain their supplies from the nearest druggist or dealer. Homœopathic globules and other preparations are quoted on the price lists, and kept for sale by several of our largest jobbers in New York, while homœopathic vials and corks are almost universally kept.

The demand at the pharmacies and stores is to a very large extent from people who have books on domestic practice, and prescribe for themselves. This is, however, quite a large, popular, and increasing business, as the medicines are pleasant to taste, and all the same price, generally ten cents for a drachm vial. The dose of all the medicines is the same. The globules are the most popular, and the dose of the ordinary size, number twenty-five, is eight for an adult. They are always dispensed with the name and strength on a narrow strip label, and stamped on the cork, great care being taken to always keep the same cork in the same bottle. The dispenser should possess among other requisites, clean hands, and freedom from the flavor of obnoxious vegetables, and tobacco. One of their popular preparations is Rubini's camphor, sometimes called Rubini's tincture; it is prepared by dissolving camphor in an equal weight of alcohol, and is frequently called for in our stores.

Some physicians and druggists object to the sale of homœopathic medicines in our stores, and call it quackery. Yet they have little or no complaint to make about the sale of botanic medicines, and eclectic preparations, which are universally kept, frequently prescribed and used by them, and many of which have been introduced into our Pharmacopœia. The same may be also said of patent medicines. I do not wish to be considered an advocate of homœopathy, or of any other system or practice of medicine, as I really have little or no confidence in any of them. But as a pharmacist and druggist, I consider it my legitimate business to compound, prepare and dispense all kinds of medicines, for all kinds of doctors and people, showing no discrimination or partiality for or against any particular kind, on account of their medical, political or religious opinions. And should a new system of medicine, with a Pharmacopœia entirely different in every respect from anything now in existence spring up to-day, I would consider it my duty to obtain it, and prepare and dispense for them, as soon as I could.

I have been informed that homœopathic pharmacy is exclusively in the hands of regular druggists in Germany and Russia, and to some extent in France, Italy and Switzerland. Nearly all the druggists in England, and a very large proportion of the best houses in this country sell them.

Whatever we may think about homœopathic pharmacy, we must all admit that in their universal Pharmacopœia, dose, and price of all the medicines, they have attained what we have long talked of, and hoped for, and that by the great care bestowed on the collection and preparation of their medicines, they have established and maintain a

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high standard for purity, which we could do well to profit by. Such a thing as an adulterated or low grade of any homœpathic medicine has never been heard of. Their pleasant taste, low price and neat appearance have done much to make them popular with the people, and the handsome profit they pay has had a similar effect on the druggist.

In conclusion, the following extract from the introduction to the Pharmacopœia referred to will be of interest:

"But if it is asked whether the physician, occupied with his professional practice, and often limited pharmaceutical knowledge, should prefer to prepare his own remedies, or obtain them ready for use, prepared with scrupulous accuracy, there could be but one answer, In short, in the course of time, it has been found impossible to dispense with the assistance of professional pharmaceutists."

I would further add, that whatever we may think of homœopathic pharmacy, there is one advantage we must all admit: that should a mistake occur in dispensing, there is no danger of it proving fatal, or of the physician, chemist or any one else, ever finding it out.=*Proceed. Am. Pharm. Association.*

NASHVILLE, 1873.

PEA-NUTS.

North Carolina Pea-Nuts are a recognized commercial commodity and are known and esteemed by all nationalties. The sage philosopher has his ground nuts, the learned legislator his pea nuts, and the rollicking school boy his "goobers,"—all being the self-same nut, produced in some sections of North Carolina, and by the same means of cultivation. Three-fourths of the crop of pea nuts raised in North Carolina are produced in the counties of New Hanover and Onslow, which are located in the south eastern section of the state described as the piney region. These counties are especially adapted to the growing of this nut—both as to climate and soil, and the yield is very large, and the nuts are in great perfection. The successful cultivation of this crop depends very much upon the soil, seed and general culture, hence the success which attends the planters, in the counties designated—the soil is light in color and texture, rests on a firm clayey subsoil, and is moist; in addition to these qualifications it is free from vegetable matter and highly impregnated with lime. The planters by experience have ascertained that imperfect nuts will vegetate, but will not produce a vigorous plant, so that none but the best nuts, the finest are selected for seed. If fertilizers are used, it is generally rich stable compost. The land is plowed about four inches deep and then thrown up in ridges about two feet apart, planting commences in May, if the weather is favorable, the seeds are placed at a distance of 12 or 16 inches, two or three seeds in a place about an inch apart, and about half an inch deep and covered lightly. No grass is permitted to remain in the field during the first two workings. When the seeds come up and begin to grow a turning plow is run very near to the plants and the dirt thrown off; afterwards the weeding, siding

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and throwing out the middle is done by means of hand hoes. By this time the plants throw their pedancies, at the ends of which the peanut is found under the ground, and they are not then disturbed until just before early frost, when they are dug by means of an implement especially made for the purpose. When dug they are exposed to the sun for a few days, then stocked up or gathered in barns until an opportunity is given to pick the nuts from the vines. The vines make good forage. The nuts are generally brought to market, good and bad all mixed together, and in order to have them uniform, a machine similar to a wheat fan is used in separating the good nuts from the pods and inferior ones. We find there are produced in North Carolina about 125,000 bushels annually; that the average price in 1873 was $1.00 per 28 lbs., which is the weight per bushel. Wilmington, North Carolina, exported during 1873, 100,000 bushels.—*The South.*

CEMENT FOR AFFIXING LABELS TO TIN OR OTHER METALLIC SUBSTANCES.

BY E. B. SHUTTLEWORTH.

Of the various formulæ which have been published, none have given such satisfactory results as that in which tragacanth mucilage is mixed with honey. Paste of this kind has, however, two disadvantages—tardiness in drying, and susceptibility to damp. I have found that by incorporating or triturating with the mixture a considerable proportion of dry wheaten flower, these disadvantages are very much reduced, and the adhesiveness and permanent tenacity of the film are perceptibly improved. I think that those who try this plan will have every reason to be satisfied with it. The following proportions may be used:—

Tragacanth Mucilage................	10 parts.
Honey............................	10 parts.
Flour............................	1 part.

A cement possessing better damp-resisting properties, but having the disadvantage of not being permanently adhesive where the surface of the metal is at all greasy, and also being objectionable on account of its dark color and liability to disfigure the label, is formed by boiling together, until solution is effected, 2 parts of shellac, 1 of borax, and 16 of water. Shellac dissolved in alcohol will produce a cement having perfect damp-resisting properties, but the film is very apt to separate from a polished surface. Flour paste, to which a certain proportion of sulphuric acid has been added, makes a lasting paste, but the acid often acts on the metal—especially if exposed to damp—and unsightly stains are produced, which penetrate the label. This paste cannot be used for ordinary colored papers, nor with some colored inks. Mixtures of flour paste with molasses, syrups, or honey have been recommended, but are never reliable.—*Canadian Phar. Journal.*

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ON FLEXIBLE GELATIN PLASTER.

BY HENRY N. RITTENHOUSE.

Query 1.—Can a permanently flexible Gelatin Plaster be prepared by some addition to the isinglass used, which will prevent the tendency of the plaster to curl and irritate the skin mechanically?

The desired object can be obtained by the addition of 10 per cent. of glycerin to the isinglass used.

I suggest the following formula:

Take of Isinglass, Russian,	10 ounces.
Glycerin, concentrated,	1 ounce.
Water,	3 pints.

Mix the water and glycerin, and macerate the isinglass in the mixture an hour or two, then boil ten or fifteen minutes, and strain through coarse muslin; spread the mixture in successive layers, on about four square yards of silk, in a suitable frame, allowing each layer to dry before adding the next. When dry, cut from the frame, and divide into suitable-sized pieces, and put up in rolls.—*Proceed. Am. Pharm. Association.*

THE BALSAMS OF LIQUIDAMBAR STYRACIFLUA, AND ORIENTALE.

Mr. W. L. Harrison, in an inaugural essay, published in the *American Journal of Pharmacy*, April, 1874, gives the result of a careful and thorough examination of the balsam commonly known as sweet gum, indiginous to nearly all parts of the United States. The experiments showed all constituents of the Liquidambar, Orientale and in the same proportion cinnamic acid, styracin, the volatile oil styrol, and resin.

The balsam also somewhat resembles Storax in its physical properties; the tree producing it belonging to the same natural order, hence it is naturally concluded that by a proper treatment of the fresh bark, a product similar to, and answering all the purposes of liquid storax, may be obtained.

Professor John M. Maisch, in an article on the foregoing in the same journal, says the difference in their physical appearance is readily accounted for in the different methods employed in obtaining them. The Liquidambar Styraciflua, or sweet gum, even after having become dark colored by exposure, is perfectly transparent in thin layers, while the L. Orientale is of a peculiar gray color and opaque, until the water which it contains has been expelled by heat, or allowed to settle by long standing, when it becomes clear. When the sweet gum was heated in a water-bath with a small quantity of water and frequently stirred, the balsam assumed a grey color, and remained opaque after cooling. The so-called sweet gum is used medicinally in some sections of the South, principally as a stimulating expectorant, and is prepared in the forms of syrup and tincture by the formulas for the corresponding preparations of tolu, and used in the same manner.

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CULTIVATION OF OPIUM IN INDIA.

BY R. SAUNDERS, GHAZEEPORE.

The cultivation of the poppy in India can be traced back as far as the 16th century. An allusion is made to the opium and saltpetre monopolies of the Emperor Akber in the reign of Queen Elizabeth, in the celebrated Ayeen Akber of Abul Fuzul, prepared during the latter part of the 16th century.

The poppy plant has been cultivated in Nepaul for many years, doubtless for as long or longer than in Bengal or the Northwestern provinces; and it may be that the opium from India was first introduced into China by the Nepaulese inhabitants of Nepaul, and afterwards by the Dutch, who used to purchase the drug for export, long before the East India Company held possessions in this country. The process of the manufacture in India at the present day is as follows:—

About the end of January the poppy plant commences to flower, and continues till March; the petals are watched, and are carefully collected in the following manner:—

The forefinger and thumb encircle the stem just beneath the pod, and, with the other fingers drawn inward, a kind of tube is formed; this tube is then gently raised straight over the pod, and if the petals are matured they come off. They are never plucked off, as it would injure the pod. When a sufficient quantity has been collected in this manner, the cultivator proceeds to manufacture them into flat cakes, something like pancakes or, as they are technically termed, flower leaves, and the opium cakes are wrapped in these leaves.

The manufacture of the flower leaf is simple and inexpensive. A circular-ridged earthen plate, about 12 inches in diameter, is placed over a slow fire, the required quantity of petals is then placed in it, and pressed with a damp cloth hard till they have adhered together; the flower leaf is then removed and allowed to dry, when it is ready for use in the manufacture of opium. In February the poppy plant is pretty well advanced, and the prospects of the season can then be fairly ascertained.

In some instances in January, but generally in February and March, the pods mature and are lanced in the afternoon; the opium is allowed to exude and remain on the pod till the next morning, when it is scraped off gently with a small iron scraper, and the thumb or finger is then run over the incisions to close them. The number of incisions required to complete exudation of all the juice varies, and ranges from one to five and six, and occasionally to seven and eight in some isolated cases. The opium thus collected is placed in earthen or brass vessels slightly tilted to drain off the dew and any opium juice it may contain; and when the whole of the drug is collected and thus treated, it is carefully manipulated, put into a new earthen pot and set aside in some ventilated and safe place. Should the opium be of low spissitude, it is exposed in some shady place (not in the sun), turned over occasionally and very carefully so as not to injure the grain, and is so treated till it reaches the required consistency; and remains in the custody of the cultivators until it is weighed. After the opium has been abstracted, the pods are allowed to dry, and are then broken

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off and the seed collected. An ample quantity is kept by the cultivator for next season's sowing, and the remainder disposed of to traders.

The leaves of the plant are left on the podless stalks, and, when withered, are collected and delivered into the Government opium factory, and termed technically *trash*, for packing the opium balls in the chests, for which payment is made at the rate of 12 annas a maund.

The flower leaves are weighed in March and April, and are sorted into classes. The first is of fine texture and color, and from eight to ten inches in diameter; the second, slightly inferior in both texture and color; and the third is of a roughish and thicker quality; as sorted they are weighed, and the weight of each quality is entered in the leaf weighment book, when the value of each quality is calculated at the rate of Rs. 10, Rs. 7, and Rs. 5 a maund.

The flower-leaves are despatched by boats to the factory at Ghazeepore, and on arrival are weighed, examined, and classified.

Before the opium weighments commence, the several books are prepared; new earthen jars and pots, with covers, are purchased and carefully weighed, coarse cloth, sealing wax and twine for closing and sealing the jars, and baskets for holding the filled jars, are also purchased; every scale, beam, weight, pan and reservoir is carefully examined and tested, and then the weighments take place.

After the opium has been brought in by the cultivators, it is tested, and samples of each consignment are taken for a careful chemical analysis, to the opium examiner's room, to detect adulteration. The opium is then stored in large wooden vats.

The pure opium, which is fit for the China provision, and the consumption of the local market, is stored in large wooden vats, each holding about 50 maunds (about 2 tons weight); the opium derived from the assameewar and chullan sources is not stored anyhow, but each parcel, according to its class, is emptied into a vat bearing the designation of that class; the light divisions are arranged in lines.

As much opium as can be removed from the vessels by light scraping is taken; that which adheres is afterwards removed by second scraping, and set aside for lewah: and that which persistently adheres is removed by water—this is called washings, and when evaporated is used in making lewah; the washings alone are valued at about Rs. 65,000 a season at the Ghazeepore Factory, and the opium thus recovered amounts to over one ton in weight.

When a vat is filled, the opium in it is stirred by long wooden poles daily until the drug is used for caking.

When there are about 2,000 maunds (about 80 tons) stored—we have accommodation for upwards of 6,000 maunds—we can, if we possess the proper quantities of the various consistencies, commence caking. One may ask, but why have you not caked before you collected so much? The reply is, we are bound by order to cake at a consistence of 70°; that is, when the opium contains 70 per cent. of the pure dry drug and 30 per cent. water. We are allowed—as it is very difficult to hit off the consistence of 70° exactly when manipulating such a large quantity (nearly three tons) as we require daily for caking—to cake when the assay shows the opium to be above 69.50°

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and under 70.50°, so that we are allowed half a degree above and below the standard of 70°.

To prepare the opium for caking, a certain number of vats are prepared of each class; a long iron instrument, somethiug like a cheese-taster, is thrust from the top to the bottom of the vat (it forms half a hollow cylinder when open, and a complete cylinder when shut), and closed; the sample of opium is withdrawn, the contents of the sample drawn are thoroughly mixed up, and three specimens of 100 grains are assayed; the mean of the three results is taken as the correct consistence. By the same process the samples from all the vats, which have been marked, are taken and assayed; those which will give, when mixed together in certain proportions (by rule of alligation), opium at a consistence of 69.30 or 69.40° are exported to the alligation vats, and the contents of the selected vats are equally distributed over the seven alligation vats, so that the consistence of each may be uniform. The opium is then well mixed by rakes and by men walking about in it, and kneading it with their feet. At about 3 p. m. it is removed from these vats into the five caking vats; equal quantities being taken from each of seven alligation vats are distributed over the five caking vats. On the following morning the opium in each vat is again mixed by six men allotted to each, from 5 a. m. to 8 a. m. Four samples are taken from each vat, and thoroughly incorporated together, and three specimens from this mass are taken for assay; this pertains to every caking vat. Should the whole of the assays of each caking vat come out above 69.50 and under 70.50, the agent of the Ghazeepore Factory gives the order to cake, or in his absence the principal assistant does so.

The cultivation of the poppy plant is rendered as far as possible both profitable and popular.

A large room, 944 feet long by 27 feet wide, accommodates the 250 cake makers; each cake maker has a number, and a place assigned him to work at, the cake-maker's number being printed on the wall above his seat. Each man is provided with a wooden seat, and is furnished with a brass cake-mould, forming the half of a hollow sphere; he has also a tin vessel graduated so as to hold 4½ chittacks of lewah, the regulated quantity which is used in making the shell of each cake.

The opium produce per beegah ranges from one to fifteen seers, according to the quality of the soil and the attention and care bestowed on the cultivation, and state of the weather. The profit varies, and ranges from Rs. 1 to Rs. 50 or upwards per beegah.

The following materials are used in making a cake, and as it is necessary that every cake should be of the same weight, viz., two seers, every precaution is taken to ensure the accurate determination by weight or measure (calculated for weight by actual experiments) of the articles which compose the cake. The proportion of each article is given in the table below :

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	Seers.	Chittacks.
Standard opium at 70	1	7·5
Lewah at 53	—	4·5
Flower-leaves	—	5·0
Water	—	·5
Trash	—	·25
Total weight of cake on the day of manufacture . . .	2	1·75

The lewah now demands attention. Lewah is a paste made by breaking down opium in water which has been used for removing the traces of opium which adhere to the jars or vessels in which opium has been placed; this is called washing, or technically, *dhoe*; the washings contain about 8 to 10 per cent of opium; the opium is broken down in large vats containing about 800 cubic feet, and about 8 per cent of pussewah is added to the lewah to render it smooth and glutinous.

When the lewah has a consistence of over 52·50 and under 53·50, it is called standard lewah; its consistence is determined every morning by assay, and, until it is of the proper degree caking cannot commence.

The lewah is delivered in bulk by weight, and the quantity to be used for each cake is measured by a brass cup, which delivers 4½ chittacks at 53°.

The poppy flower-leaves agglutinated by the lewah form the shell of the cake; five chittacks of dry leaves are required for each cake; but as the leaves vary in weight according to the amount of moisture in the atmosphere, ten seers are steam-dried daily to ascertain how much moisture they contain; knowing this, an exact increase or decrease in the weight of leaves can be made, which is required to compensate for the moisture contained. This control is necessary, since if five chittacks of leaves are used which contained much moisture, when the leaves parted with that moisture by evaporation in the dry months the cakes would be light.

The loss in weight which the leaves sustain by steam-dryings is determined on the day previous to their being required for use ; the bulk required for the caking of the next day is weighed out and damped in the afternoon, so as to render the leaves supple and pliant; when dry they are crisp and break readily.

Having explained the preliminaries of caking, the method will now be described. Down the centre of the room the scales for weighing opium and the lewah vats are placed; there is a weighman for each scale and two assistants. The weighman weighs the opium on a very delicate scale, and one assistant searches the opium to ascertain finally that there are no extraneous matters in it; the second man arranges the movable tin pan, and places the opium on it.

When caking commences the caking-vat room doors are opened, and the opium is brought out in tinned sheet-iron vessels holding 20

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lbs each. One vessel is set before every scale, and a sufficient quantity for one cake having been searched is handed over to the weighman's second assistant, who adjusts the quantity in the pan. When the weighman declares it to be correct, the tin plate with the opium is taken away by a boy to his cake-maker, who has been supplied in the mean time with a tin cup filled with the requisite amount* of *lewah* for a single cake; he has also received the proper quantity† of leaves for one cake.

Having these by his side, the worker now rapidly forms in the brass mould the lower half of the shell of a cake, pasting by means of the lewah, leaf over leaf, until the thickness of about seven-sixteenths of an inch has been obtained. He allows in so doing the upper part of some of the leaves, which he tears in half and places vertically, to hang down outside the mould (with these he forms the upper part of the cake). The cake shell is principally made of half leaves vertically placed, other halves being inserted horizontally, so as to give equal strength in all directions. Having finished the lower half of the shell he takes the tin plate and accurately, to a grain, removes the opium into the half of the shell now ready for its reception; it is pressed upwards into the shape of a cone, some pieces of leaves are applied horizontally to it, then some lewah; now some of the parts of the leaves hanging down are pulled up and secured, more pieces are applied horizontally, and at last, having pulled up and properly arranged all the pieces of the leaves which were hanging round the cup, a whole leaf is applied to the top, and the cake is now finished.

It is a sphere of about the same size as a 24-lbs spherical shot; it is removed from the mould and dusted with a little coarsely powdered poppy trash, so as to prevent its adhesion to the cup—made of burnt unglazed pottery—which is of the same shape as the mould in which the cake was made. It is now carefully placed in the cup while still soft, and it is carried out by the cake-maker's boy, who puts it in the sunshine on a little square of brick flooring, which has been allotted to the cake-maker whom he serves, and where a small board stands bearing his master's number.

Before removal, a paper-ticket is pasted on the cake, bearing the cake-maker's number, and the date on which it was made; every cake has its ticket, so that we can at any time trace its history, and by this means we can hold every cake-maker responsible for the careful manufacture of his cakes; by means of these tickets, should anything be found wrong with any cake it can be brought home to the man who made it.

The caking begins generally at 10 a. m., and lasts till half-past one or two o'clock in the afternoon; usually 20,000 cakes are made daily.

The cakes are on the evening of the second day counted and sent to their destination in one of the cake godowns, where they and their cups are stored in racks.

The great object to be attained is to make the cake as carefully and compactly as possible by one operation, to have the shell even in

5 chittacks. † 2 chittacks.

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thickness throughout, and to spread the lewah uniformly between the leaves. This can be attained by good cake-makers under strict supervision; cake-makers usually make sixty cakes a day; every good cake maker gets twenty or more additional ones to make, for which they receive an extra allowance.

The flower-leaf forms an excellent covering; it is in every way suitable, but it has its drawbacks. It is affected by wet, and is liable to be attacked by mildew, borers, aud white ants, while it will not resist hard pressure applied to any small area of its circumference; however, it certainly most effectually retains the moisture and aroma of the drug enveloped in it, and by its own fragrance adds to that which the opium *per se* contains.

The cake godowns are large and high brickwork buildings, with galvanized iron roofing, well ventilated by numerous windows and doorways. The windows have iron gratings fixed in the masonry outside, and skeleton doorways are provided for the best godowns to admit of the entry being closed while free circulation of air is not interfered with. All the doors and windows of the better class godowns are further secured from thieves by galvanized wire netting, so that cakes cannot be cut up and passed out in large pieces.

Inside the godowns are wooden racks, extending nearly up to the rocf; there are intervening rectangularly-placed passages traversing the frames to permit of ventilation. In these racks the cakes are stored in their cups.

Every third day the cakes, wherever placed, come down to the ground, are lightly hand-rubbed with a little trash, turned, replaced in their cups, and sent up again to be placed in the racks. The object of turning is to allow the shell of the cake to dry evenly.

The packing takes place only in dry weather, and after the morn ing dew has been dispersed.

Into a strong mango-wood chest, one yard long and two feet four inches wide, forty cakes are packed in two layers of twenty each; the balls are prevented from rolling out by each one being placed in a compartment; and in these chests, varying in number according to the year, the opium cakes find their way to Calcutta, whence they are shipped to China at the close of the annual Government sales, each chest realizing as much as £14, or, in other words, 1300 rupees, in an average good season.

POPULAR REMEDIES OF TOORKISTAN.

BY PROF. DRAGENDORFF.

(Continued from page 108.)

26) *Busidan.* A white, very mealy root, its form, that of a beet, rarely branched, very mucilagenous and having little taste. Most of the samples are 1 ctmtr. thick and 4 to 5 ctmtr. long, tapering towards the top as in Ginseng. The structure of the root offers but little, that is characteristic, excepting small balsam-ducts in the bark which are free from prosenchyma containing amylum. The starch-kernels present rounded corners are often united, and not glutinous

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(as in the common Ginseng). It may not be impossible that it is derived from an Araliacea. About its origin I could learn only that it was gathered in Samarkand. (According to *Palm*, in India.) Softened in water, it is used against diarrhœa. The name is mentioned by *Ebn Baithar*, who declares the root to be a kind of Mostadschalat and similar to white Behen. Mostadschalat (compare No. 42) grows, according to this authority, abundantly in the vicinity of Alexandria; the leaves are said to be like those of Tharachuschakuk (Taraxacum). Whether the true Ginseng is used in Toorkistan, I could not learn. It is to be met with here and there occasionally.

24) Ssumbul et tîb (Sumbul et tîb) the true Indian nard (Nardostachys Jatamansii D C.), is called in Arabic *Usrurch* and Sumbul hindi as in Caucasia, in Persian also S. et tîb (et tîb=of perfume; in Hindoostan it is called *Belchur* and *Jatamansi* the latter derived from the Sanskrit.) It is used now as in the time of Dioscorides and Rhazes, as an aphrodisiacum. The root, which we at present call.

28) Ssumbul, bears this name also in Bokhara where it is found in abundance. Its native plant, which *Rauffman* called *Eryangium Sumbul*, is cultivated in the botanical garden of Moscow. In Toorkistan Sumbul is used mostly as a perfume.

29) In Tedschenko's collection Valeriana is presented as *Aasarum.* According to him it is found in Samarkand.

30) *Momiron*, a rhizoma coming from China, corresponds to *Mishmee* derived from *Coptis*, *Tecta Wall.* The samples consist of a knotty root of a yellow or yellow brown color, in piceces about 5 ctmtr. long and ½ ctmr. thick. Secondary roots have been removed by cutting. It is hard, of an even fracture, showing the color of Curcuma. It yields berberin abundantly to water and color the saliva bright yellow. The same drug I received from Caucasia under the name of *Mamiratschin.* Why the report of the medical association declares it to be the root of the south-Russian *Statice tartarica* L., I do not know. It is much used to color leather, but aside from everything else, it is much cheaper. A pound of Mamiratschin costs 10 rubels in Caucasia. There as well as in Toorkistan, Momiron is used in affections of the eyes, and a like use may be traced back to *Khazes* and *Avicenna*, who call it *Mamiran.* The Kirgise call it like the rhapontic rhubarb *Tuschuett.* *Paulus Aeginetes* and *Arctuarius* mention Mamiras and it may be possible that our Mischmee corresponds to Chelidonian mikron, which is commonly said to be derived from *Ranunculus Ticaria L.* At any rate *Dioscorides* as well as *Galen* mention the effect of Chelidonian in diseases of the eyes, and in later times Arabian writers (Ebn Baithar) make a distinction between a Chinese and the great Cellandine. *Ebn Baiiher* describes a Chinese remedy under the name Mamirûn, which is said to be similar to Curcuma and Cellandine-root, but which he did not see.

31) *Daschembu Nauscha* may be the root of a Violarinea, the remnants of some leaves confirming this view. I could learn, however, nothing about this drng otherwise. The name, for the corectness of which I cannot vouch, is not found in lexicons (mûschgrati saporis ; facilis ad concoquendum).

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EDITORIAL.

GRANULAR CITATE OF MAGNESIA.

In a late number of *The Tennessee Pharmacal Gazette* we find an editorial on the recent arrest and conviction of a druggist under the "Adulteration Act" in England, in selling Granular Citrate of Magnesia which contained no magnesia. We are surprised at the following passage of our colleague's remarks, where he says, "It was certainly an unjust and severe punishment, as no one who knows expects the granular citrate of magnesia to contain more than traces of the sulphate which is added for its effect on the conscience of the manufacturer."

This sweeping charge of an intention of fraud by *all* the manufacturers of this granular magnesium citrate salt, we are satisfied was not correct, and therefore was unjust. We are not nor do we ever expect to become the exponent of the producers of these "novelties" in pharmacy, as we look upon them as encroaching on the legitimate avocation of the educated and competent dispensing pharmacist, as well as detrimental to the practicing physician who prescribes these remedies for his patient.

In justice to those whose productions are as represented and who are placed in the same category as those who palm the fraudulent article upon the market, we have investigated a number of specimens of this preparation and find that the granular salts bearing the labels of the following firms *are* salts of *magnesium citrate*, varying somewhat in the point of solubility only. Messrs. Southall, Son & Dymond, Birmingham, England, and Messrs. Chas. Ellis, Son & Co., Hance Bros. & White, and Keasbey, Mattison and Rutter, of Philadelphia. The salts of Messrs. Herring & Co., John Bell & Co., Hoffman & Co., Webbers, and Alfred Bishop of London, England, are not magnesium citrate, containing only sulphate of magnesium as an addition to tartrate of soda. Those of Ede and Ford are devoid of even this magnesium salt, being purely tartrate of soda; to these latter may be added the salts put up by J. R. Nichols & Co., (now Billings, Clapp & Co.) Boston, and Hanbury, Smith & Hazard, New York City, both of which contain magnesium sulphate.

Therefore, if we, as pharmacists must sell and dispense this class of preparations, let it be to our credit that we supply only such as have not merely a claim in the name, but are really so in their composition.

TRANSACTIONS OF PHARMACAL COLLEGES AND SOCIETIES.

PHILADELPHIA COLLEGE OF PHARMACY.

The annual meeting of the Philadelphia College of Pharmacy was held March 30th, 1874. Mr. Dillwyn Parrish, President, occupied the chair; William J. Jenks, Secretary.

The report of the librarian was presented, showing that the books are in constant use by the members and students.

The report of the Publication Committee shows the *Jonrnal* to be in a very flourishing condition, and increasing largely in its area of usefulness.

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A donation was received from Mr. Peter Williamson, one of the original members of the college, of $500; also, a legacy of $500 from the late Prof. Procter, the interest of which is to be used for the purchase of a medal to be given annually to the graduate having the highest rank in his class.

Resolutions from the Colleges of Pharmacy in Louisville and Chicago, relative to the death of Prof. Procter, were received. These were ordered to be published in the journal of the college.

An election then took place for officers with the following result:

President, Dillwyn Parrish; First Vice President, Charles Bullock; Second Vice President, Robert Shoemaker; Treasurer, Samuel S. Bunting; Recording Secretary, William J. Jenks; Corresponding Secretary, Alfred B. Taylor; Board of Trustees, Bobert Bridges, M. D., John M. Maisch, Daniel S. Jones, Thomas S. Wiegand, James T. Shinn, T. Morris Perot, William B. Webb, Joseph P. Remington. Publication Committee, John M. Maisch, Henry N. Rittenhouse, Thos. S. Wiegand, James T. Shinn, Charles Bullock. Sinking Fund Committee, Thomas S. Wiegand, T. Morris Perot, James T. Shinn. Editor, John M. Maisch; Librarian, Thomas S. Wiegand; Curator, Joseph P. Remington. To fill vacancy in the Board, E. C. Jones.

At the regular meeting of the Board of Trustees of the Philadelphia College of Pharmacy, held on April 7th, Joseph P. Remington was unanimously elected Professor of Theory and Practice of Pharmacy, to fill the vacancy caused by the death of Prof. William Procter, Jr.

MARYLAND COLLEGE OF PHARMACY.

The twenty-second Annual Commencement of the Maryland College of Pharmacy, was held at Germania Maennerchor Hall, Lombard street, Monday evening, March 23d, 8 o'clock. The announcement of graduates was by Prof. Claude Baxley; degree conferred by the President, Jno. F. Hancock, Esq.; and valedictory by Prof. Wm. Simon, M. D. The following are the names of the graduates in the order of merit:

Wm. C. Schiller, E. W. Eilau, Edward M. McComas, Chas. F. Roehle, F. W. Koss, Chas. G. Smith, D. E. Schoolfield, Wm. Partlow Thompson, Oscar Hofmann, Henry R. Horstmann, Adolphus B. Long, Ernst Hasenbalg, D. J. Clarke, Thos. L. Beckenbaugh, A. Schloss.

The annual meeting of the College was held March 24th, at 3 P. M., in College Hall. Mr. J. F. Hancock in the chair, Dr. E. Eareckson, Sec'y. After an interesting session it adjourned to the "Rose House," where the annual address and supper transpired. Mr. B. Rush Roberts, formerly a Professor of the College, delivered the address before about sixty members of the Pharmacal profession. On its conclusion the company repaired to the supper, spread in "Maguire's" best style, which was *seriously* discussed, and followed by a "feast of reason and a flow of soul," in toasts to Government

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and State Executives, Medical and Pharmacal Professions and the ladies. At an *early* hour the festivities closed.

J. NEWPORT POTTS,
Rep. M. C. P.

DRUG CLERKS' ASSOCIATION.

The regular monthly meeting of the Washington Pharmaceutical Association was held at the hall of the Association, No. 469 Pennsylvania Avenue, Wednesday evening, April 1st. The President, Mr. Geo. A. Bentley, in the chair. The minutes of the preceeding meeting were read and approved.

The Committee on Pharmaceutical Legislation in the District, appointed at a previous meeting, to confer with a similar committee from the National College of Pharmacy, for the purpose of urging the passage of a law regulating the practice of pharmacy in the District of Columbia, reported through their chairman, Mr. W. T. Baldus. Mr. Baldus gave a lengthy report of the proceedings of the joint committee, stating that a majority of his committee were favorable to accepting the bill as prepared by sub-committee from the joint committee, He deemed it expedient for the Association to take up this subject and thoroughly discuss it and push the matter to a final settlement.

Messrs. Martin and Hines opposed the bill as it now read, as by the passage of this bill it would prove injurious to the better class of drug clerks of the city. On motion of Mr. Martin the report was rejected. The draft of a bill, that in the opinion of the Association would be acceptable to both clerk and proprietor, was presented and adopted. The chair appointed the standing committee on pharmaceutical legislation with instructions to present the matter to the legislature which convenes in April. The following compose that committee: Messrs. Baldus, Price, Bentley, Hines, Stewart, Reynolds, Martin, and Butts. The Board of Directors presented the names of the following gentlemen, members of the National Medical Association, as Honorary members: Dr. R. S. L. Walsh, Dr. J. W. Buckly, Dr. E. A. Adams, Dr. Aaron W. Miller, Dr. James E. Morgan, Dr. J. Lew Elliot, Prof. Geo. Reuling, and Messrs. Charles Christiani and Wallace Eliot, Druggists. Dr. J. A. McCauly was admitted as an active member.

After liquidating the current expenses of the month, the meeting adjourned.

C. S. Price, Sec'y.

SYNOPSIS OF A BILL, TO PREVENT INCOMPETENT PERSONS FROM ENGAGING IN THE PRACTICE OF PHARMACY IN THE DISTRICT OF COLUMBIA.

Section 1. Be it enacted by the Legislative Assembly of the District of Columbia, That from and after the passage of this act, it shall be unlawful within said District for any person not a registered pharmacist, within the meaning of this act, to open or conduct a

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pharmacy or store for compounding or dispensing physicians' prescriptions, or for selling at retail any drugs, chemicals, poisons or medicines.

SECTION 2. Provides for the appointment immediately on the taking effect of the law, and biennially thereafter, by the Governor of the District, of five of the most competent pharmacists, who shall be known as Commissioners of Pharmacy. They shall take an oath before a Notary Public to faithfully discharge their duties.

SECTION 3. provides for the keeping of a book of registration by the Commissioners, in which shall be recorded the name and address of every person registered under this act.

Graduates in pharmacy who shall have had at least four years' practical experience in the retail drug business, and any person over 21 years of age who shall be actually engaged as a principal or owner of a pharmacy at the time of the passage of this act,shall upon application be entitled to registration, without examination, and also any person over 21 years of age, with four years experience, who at the time of the passage of the act are actually engaged as assistants, may be registered without examination if application is made within 60 days after public notice.

SECTION 4 provides for the examination by the Commissioners of all who desire to become registered pharmacists, excepting those above mentioned who are not required to be examined.

SECTION 5 provides that no minors, habitual inebriates, nor those suffering from mental derangement, shall under any circumstances be entitled to registration, and no person shall be granted an examination unless he shall have presented satisfactory evidence of having served an apprenticeship of at least 4 years in a pharmacy where physicians prescriptions are daily prepared.

SECTION 6 provides that in the death of a registered pharmacist, his store may be carried on for the benefit of his heirs, by or under the immediate supervision of a registered pharmacist.

SECTION 7 provides for the payment to the Commissioners of five dollars by each person examined for registration, and two dollars by each person registered without examination.

SECTION 8 provides that any person who shall by false representations attempt to get himself or another person registered, shall be liable to a penalty of from 25 to 100 dollars; also any person, not a registered pharmacist, who shall keep open a pharmacy, or who shall take charge of one,or who shall dispense physicians' prescriptions,except under immediate supervision of a registered pharmacist, or any registered pharmacist authorizing or employing any person not a registered pharmacist, to dispense physicians' prescriptions, except under the immediate supervision of a registered pharmacist, shall for every such offense pay a penalty of fifty dollars.

SECTION 9 provides for the payment of the expenses of executing the provisions of the act, from moneys received as fees or penalties, and the surplus money to be paid over to the general fund of the District annually.

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SECTION 10 provides for an annual report to the Governor of the transactions of the commissioners.

SECTION 11 provides that the act shall be known as the "Pharmacy Act" of the District of Columbia.

REVIEWS AND BOOK NOTICES.

PROCEEDINGS OF THE AMERICAN PHARMACEUTICAL ASSOCIATION AT THE TWENTY-FIRST ANNUAL MEETING HELD IN RICHMOND, VA., SEPTEMBER, 1873, PHILADELPHIA, 1874. 8vo., pp. 710.

We have been favored with an advance copy of this annual publication, and have taken the liberty of extracting from it for our present issue several of the very interesting papers which it contains. We sincerely hope that ere our journal reaches its readers the proceedings may be in the hands of every member of the A. P. A., as otherwise this early (?) publication of papers may deprive the official proceedings of much of its value. See report of Committee on President's address, Vol 21, page 80.

The present volume is not alone the largest, but in point of interest the most valuable ever issued by the Association. Much of this is due to the very complete reports, that on the progress of pharmacy embracing 295 pages. The reports on the drug market and on adulteration and sophistication, some thirty pages each. The report on formulas for "Elixirs" has already appeared in our columns, and that it is doing good is apparent from the advertisements of several manufacturing pharmaceutists, who announce that they follow the processes adopted by the A. P. A.—for this class of preparations. The report on the Pharmacopœia by Professor Markoe is rather an unexpected exposure of the short comings of our national Standard, when we take into consideration that he was one of the members of the committee for its final revision, he closes his critical review with the following rather sweeping remarks:

"In the opinion of the writer, the fifth revision of the United States Pharmacopœia fails to represent the progress that has been made in the practice of pharmacy during the last decade. It has "followed in the wake of advancing knowlege" at so sluggish a pace that little has been done to "gather up and hoard for use what has been determined to be positive improvement." As it now stands, it disappoints the expectations of the pharmacists of the United States, and that this feeling of disappointment will lead to an earnest, positive demand for a speedy correction of its many practical errors." "*Deliver us from our friends.*"

Among the special and voluntary reports and essays, none will be read with greater interest than those contributed by the late Professor Procter. His paper, entitled "Suggestions to the Beginner in Pharmacy," is a "chef-d'œuvre" on this subject. And the student as well as the preceptor cannot follow too closely the precepts and advice laid down in this paper by the acknowledged master of the profession in this country. In his answer to the query on the preparation of cucumber ointment he has given

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us a practical working formula for this heretofore troublesome preparation. Dr. Squibb has as usual contributed his quota of interesting and valuable information, not omitting rhubarb and ergot.

The proceedings have become a valuable addition to the pharmaceutical literature of this country, and we cannot imagine how the American pharmacist can well get along without this annual publication, which embodies in a single tome so much information that is so very necessary and useful in this progressive age.

The volume can be obtained from Prof. John M. Maisch, Permanent Secretary, No. 145 North Tenth St., Philadelphia; the price is, postage prepaid, $5 unbound, and $5.75 bound.

Annual Report of the Supervising Surgeon of the Marine Hospital Service of the United States, for the fiscal year ending June 30th, 1873. John M. Woodworth, M. D., Supervising Surgeon, Washington. Government Printing Office, 1874.

Tenth Annual Report of the Alumni Association of the Philadelphia College of Pharmacy, with the exercises of the 53d commencement and the prospectus for the ensuing course of lectures. Philadelphia, 1874.

Report of the Entomological Society of the Province of Ontario, Canada, for the year 1873.

We have received the following treatises on special subjects by Dr. G. Méhu, pharmacist in chief at the Necker-hospital in Paris:

Note on the therapeutic applications and mode of employing Dr. Méhu's iodized cotton.

On Tartrates and Citrates of Iron and their combinations with ammonium.

Solubility of Arsenious Acid in Alcohol. Liquid for the preservation of anatomic specimens.

Study on the different processes employed for the quantitative determination of albumin. A new process by Dr. G. Méhu.

New observations on phosphoretted oil.

On iodized Cotton.

On the employment of phenic acid to determine albumin.

Study of the liquids effused into the plura. Memoire crowned by the Société de Medicine du Nord.

On the employment of hypochlorite of soda in the external treatment of invalids attacked by saturnine affections.

From O. S. Westcott, Secretary of the Publishing Committee, 113 State St., *The Lens*, vol. I and II—1872-3.

From H. B. Towne, Agent for the publishers, No. 115 State street, Chicago, one copy of Worcester's Dictionary of the English Language. Boston; Brewer and Tileston, 1874.

As we are going to press we are in receipt of the just issued revised edition of Parrish's Practical Pharmacy, which we shall notice more fully in our next number.

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THE PHARMACIST.

VOL. VII. CHICAGO, JUNE, 1874. No. 6.

SPECIFIC GRAVITY.

BY GEORGE H. ACKERMAN.

As the consideration of this subject embraces both theory and practice, and to do both justice would require more space than can conveniently be spared in this communication, I shall discard the theoretical part altogether, and consider only that which is practical and of interest to the Pharmaceutical profession at large.

Before considering this subject in detail, I will devote a few moments to the consideration of the implements necessary for taking the specific gravity of a substance.

The United States Pharmacopœia employs Fahrenheit's thermometer, and designates 60° to be the temperature for taking the specific gravity. It is therefore necessary to first obtain the correct temperature, which is invariably done by using a thermometer, and if all thermometers were correct we would find no trouble in our manipulations, but it has been my experience, the thermometers as found in the market are far from correct. Although my experiments have been made rather hastily, I have nevertheless taken pains to verify as I progressed. The first compared by me were chemical thermometers, one graduated from 0 to 210, the other from 50 to 240°. The following diagram will show the difference between the two, also the reliability of the *reliable* thermometers in the market:

No. 1.............	60	80	100	120	140	160	180	200
No. 2.............	56	76	102	120	142	163	183	206

I am not prepared to say that either are correct, one if not both is evidently wrong. As a contrast, I have selected haphazard, a few of the more common thermometers of the market, and compared the same with the chemical thermometer No. 1, heretofore considered. The following schedule will show the result:

Chemical..............................	60	80	100	120
Maw & Son.............................	60	80	100	120
Kendall...............................	57	78	97	118

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Taylor	58	76	97	117
Warranted	68	82	100	124
"	54	71	96	118

The other apparatus required for taking the specific gravity of a substance, are too well known to all practical pharmacists to need mentioning here. The specific gravity bottle should have a place in every pharmaceutical laboratory, it being the most neglected yet useful instrument we have—the balance excepted.

To all pharmacists the specific gravity of liquids is of the greatest practical importance, considering the fact that the sp. gr. of a substance is one of and in some cases *the* test for its purity and strength. And with this fact in view, we should expect this subject to receive more practical attention from pharmacists generally, than it really does, yet let us hope that in the course of time—not far distant—some decided improvements will be apparent.

The manufacturers can if they choose, (and they undoubtedly choose) thrust preparations into the market of almost all imaginable strengths, regardless of the standard prescribed by the pharmacopœia. A good illustration is the aqua ammonia of commerce, which has the sp. gr. .937, and is labelled 4 F, whereas aqua ammonia should have the sp. gr. of .960. Still this is a case where the pharmacist can easily help himself. I find that two parts aqua ammonia sp. gr. 937, and one part distilled water, make a product corresponding to the aqua ammonia of the pharmacopœia.

The dispensatory in speaking of reducing the stronger water of ammonia to the water of ammonia of the pharmacopœia says: "If the mixture should not have the sp. gr. .960, it should be brought to that density by the addition either of the stronger solution or of distilled water, as the case may require," and it is without doubt the duty of every pharmacist to dispense, especially in prescriptions, that of the strength indicated by the pharmacopœia.

Almost all the other preparations are below the density prescribed by the pharmacopœia, as will be seen by the following table, where the difference between the several samples and the pharmacopœia can be seen at a glance.

It is the duty of every conscientious pharmacist to use preparations of the prescribed strength, otherwise he cannot conscientiously dispense the same and the products thereof, as corresponding to our book of law—the pharmacopœia.

Table showing the specific gravity of a few preparations compared with the pharmacopœia:

			U. S. P.
Aqua Ammonia, Fort.,	P. & W	.876	.900
" " "	C. P. & Co	.887	.900
" "	F. & F., 4 F	.937	.960
" "	" 3 F	.956	.960
Acid, Acetic,	P. & W	1.036	1.047
" Lactic,	"	1.214	1.212
" Muriatic,	"	1.159	1.160

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" Nitric,	"	1.420	1.420
" Nitrous,	"	1.414	1.420
" Sulphuric,	"	1.828	1.843
" Sulphurous,	E. R. S	1.019	1.035
" "	P. & W.	.990	1.035
" Phosphoric	Dil., J. S. J	1.060	1.056
Chloroform, pur.,	E. R. S	1.474	1.480
" "	P. & W	1.491	1.480
" "	C. P. & Co	1.488	1.480
Ether Fortior,	E. R. S	.732	.728
" "	P. & W	.734	.728
Glycerin,	Price's	1.246	1.250
"	Bowers'	1.237	1.250
"	H. & L	1.254	1.250
"	M. & Co	1.247	1.250

HONEY.

BY GEORGE F. EBERT.

This sweet principle elaborated by the *Apis Mellifica* from the nectaries of flowers, has of late years been much encroached upon by man, whose inventive faculties are ever on the alert for substitution, the only question being, "will it pay?" Honey being a saccharine substance resembling grape sugar, it is therefore not to be wondered at, that this substance at present so largely produced artificially from starch, by the action of sulphuric acid, should have become a profitable substitute for the production of that little "busy bee." We are safe when saying that the greater part of the strained honey of the market, is this starch glucose, *flavored* by the aid of fragrant leaves and flowers with a small percentage of pure honey. That this substitute is profitable, can readily be calculated when we take into consideration that starch syrup can be purchased from the manufacturers for 5 to 6c. per lb., and when sold as honey will bring 20 to 30c. per lb. The rendering of honey is generally of a smeary and unpleasant character, and as it falls in the fly-season, the sweetness of the honey attracts this pesterous insect, and adds to the disagreeableness of the operation. This feature deters many from rendering honey from the comb; yet when we take into consideration that we have no ready accurate test by which to determine the purity of honey, it certainly would seem that no conscientious Pharmacist should shirk this manipulations on account of the convenience of purchasing the already strained article of the market. Honey can generally be bought in the comb, which guarantees its purity, and if the following method be used in straining, nothing is left to excuse the purchasing of the adulterated article by the Pharmacist, as thereby all the objectionable features of manipulation can easily be overcome, at the same time yielding a product in all respects superior to that usually obtained by the processes generally employed for this purpose. It is as follows:

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Take of honey in the comb any convenient quantity, place this in a suitable vessel, and by means of a wooden ladle or pestle, reduce to a pulpy mass, then transfer it into a glass or well tinned percolator, of suitable capacity, (the diaphragm covered with a moistened piece of muslin,) and allow the percolation to proceed at its leisure. When the honey has ceased to drop, remove the receiving vessel, and pour upon the waxy residue in the percolator, sufficient water to wash out the remaining adhering honey, concentrated by evaporation, it can be utilized in making the preparations of the Pharmacopœia wherever honey is indicated, or if the preparation of honey and borax is in demand, the honey can be used for this purpose by dissolving in it, by the aid of heat, two ounces of borax to each pint of the honey.

SOLUBILITY OF ARSENIOUS ACID IN ALCOHOL.

Liquid for the Preservation of Anatomic Specimens.

BY DR. G. MEHU.

For about two years, I have prepared large quantities of an antiseptic liquid for the conservation of anatomic specimens at Nĕcker Hospital; after many trials, I have adopted the following formula, giving very satisfactory results.

This liquid is slightly alcoholic, therefore it does not contract soft tissues (generally the bladders of those troubled with calculi or affections of the prostate) for the preservation of which it is applied; it is sufficiently rich in arsenious acid to prevent their softening and their decomposition. Furthermore, in order to prevent more surely the development of cryptogamic vegetations so often observed in arsenical solutions weak in alcohol, I have added 1 part of crystallized phenic acid to 100 of liquid.

The preparation of this liquor led me to a practical observation, which I was far from looking for; it is this: concentrated, boiling alcohol dissolves easily and rapidly powdered arsenious acid, and in such large quantities that I regard this mode of solution as incomparably more advantageous, than the employment of boiling water. Those who have had to dissolve arsenious acid for medical use, (Boudin's liquor and others) know how slow that solution proceeds, and how difficult it is to make the more coarsely powdered particles disappear. The result of this observation is at present confirmed by more than fifty trials, made every time with 200 and 300 grammes of arsenious acid. I have not yet determined the exact quantities of arsenious acid dissolved by alcohols of different degrees, and at different temperatures; this investigation being much more complicated than would appear at first sight, will be the object of future study.

The substitution of an alcoholic liquid for water, as solvent, has moreover another advantage: it permits to operate in a glass capsule, over a bath of boiling water, or at a temperature near it, which avoids all attention, all loss and all projection of a dangerous liquid.

The formula for this conservator liquid is as follows:

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Arsenious Acid, - - - - -	20 grammes.
Phenic Acid, cryst., - - - - -	10 "
Alcohol, - - - - -	300 "
Distilled Water, - - - - - -	700 "

I place the arsenious acid in a glass capsule, add the larger part of the alcohol, and about a third of the water; place the capsule over a bath of boiling water, (any iron-pot over an ordinary stove,) when the contents of the capsule soon begin to boil. The greater part of the arsenious acid disappears promptly, only the more coarsely pulverized pieces remaining. I decant and filter the liquid, which I dilute immediately with boiling water to prevent the deposit of the arsenious acid, which would take place on cooling. The small quantity of arsenious acid remaining undissolved is added to the alcohol and water and subjected to another ebullition. To 100 parts of this arsenical liquor I add 1 part of crystallized phenic acid, previously liquified by gentle heat; I agitate the whole, in order that the solution may become homogeneous.

What has been said shows that it is advantageous to employ the arsenious acid finely pulverized, in order that the process may proceed more rapidly.

SUGGESTIONS TO BEGINNERS IN PHARMACY.

BY PROFESSOR WILLIAM PROCTER, JR.

REPLY TO QUERY No. 30.—**What shall I read, and where shall I begin? An essay in reply to this constantly recurring query of beginners, who are confused by the mass of books presented to them as sources of the knowledge they need.**

If the reply to this query does any good it must be by appealing directly to those for whom it is intended, viz., beginners in pharmacy, or those in the first year of their apprenticeship, and indirectly to proprietors and qualified assistants, who have it in their power greatly to aid the former class by an occasional word of advice or friendly suggestion. When a boy enters an apothecary shop with the view to becoming a pharmaceutist, he is at first employed in a great variety of services, as in opening and closing the shop, sweeping and dusting, cleansing mortars and other utensils, washing bottles, grinding, bruising, and garbling drugs, cutting herbs, stirring evaporating liquids, cutting, pasting, and attaching labels, bottling liquids, &c.; engagements requiring but moderate skill: after a time, however, the boy becomes aware that he is only on the surface of the knowledge he came to acquire, and that it is necessary for him to read and study. If he is thoughtful and earnest, and is fortunate in finding himself associated with a kindly disposed clerk, who will give a proper direction to his inquiries, and encourage his desire for knowledge, he soon gets sufficiently within the subject to find the great extent of its range and the variety of its detail.

The first effects of this impression are sometimes strongly discouraging and depressing, but if he perseveres, and has mastered the idea

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that all knowledge is of gradual growth, that like the stalactite it grows by accretion from without, as well as, plant-like, by development from within by thought-action, he will soon become reconciled to the process, and employ his spare time in its pursuit. But what shall the boys do who have no guide in a well-disposed associate, or who may be so unfortunate as to be the victim of a churlish or tyrannical clerk, or of an oppressive illiberal employer, or, what is nearly as bad, to be placed at service with an ignorant, ill-qualified preceptor?

In considering the query, it has appeared feasible to undertake a short suggestive essay, which, without entering deeply or systematically into the subject of pharmaceutical tuition, may succeed in aiding this extensive class of learners, and at the same time afford a help to well disposed apothecaries, who really desire to aid their boys, but who are at a loss how to advise them.

The *special* knowledge requisite to the apothecary is of four kinds, viz.:

1st. A practical acquaintance with the implements and apparatus of pharmacy. and with the methods of using them in all kinds of manipulation.

2d. The intelligent use of this apparatus in making preparations of the Pharmacopœia, so as to adapt it to the nature of the material treated, which involves not only some acquaintance with the physical laws, but also with the nature and composition of drugs.

3d. The study of the scientific relations of pharmacy as explained in works on Chemistry, Materia Medica, Botany, and Physics, and a thorough acquaintance with the physical appearance and properties of drugs.

4th. That important part of the business involved in getting medicines ready for the sick, as well on the prescription of physicians, as on ordinary demand by consumers, where a maturity of judgment has to be exercised in regard to the correctness of substances required. The construction of the Latin language, and some knowledge of its vocabulary, is absolutely necessary in this department in many countries, though less indispensable here than abroad.

In view of all this knowledge to be gained, it must be apparent that the native ability, and the preliminary education of the boy, have much to do with his success in mastering its details. So important is it that the beginner in pharmacy should be well grounded in the ordinary branches of school education, that in several countries abroad, none but such are admitted to apprenticeship, with some knowledge of the classics superadded. When, therefore, he brings with him some rudimentary knowledge of the sciences as taught in the best common schools, our novice is well equipped to make progress in the avocation he has chosen, and needs only perseverance to succeed.

The text-books upon which the beginner has mainly to depend, are the United States Pharmacopœia, the United States Dispensatory, and some one or more works on chemistry and pharmacy, with a Latin dictionary, and when possible Webster's dictionary. One of the first lessons is to get a practical acquaintance with the labels in the store, in connection with the substances labelled; this is the ground-

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work of his study of the business, and is essential to progress in other directions. The habit of abbreviating labels on shop furniture and in prescriptions, adds much to the trouble of the novice in learning them, and it has sometimes happened that he has never thoroughly acquired the terminations of the words so as to use them with facility. A good plan is to commence with a shelf of bottles or a row of drawers at a time, and by the aid of the officinal list of the Pharmacopœia and the Index of the Dispensatory, to copy the names in full into a rough note-book in *columns*, placing the English name in line. He should be assured that the labels are correct for the substances contained, and then by close observation get as clear an impression of the appearance, taste, and odor of each substance as possible. Another shelf or row should then be taken and proceeded with, observing from time to time to exercise the memory and the senses on each preceding lesson till it becomes familiar. This brings us to consider for a moment the manner of consulting the Pharmacopœia and Dispensatory for this purpose. The Pharmacopœia officinal list is arranged alphabetically, and the same arrangement applies to the groups or kinds of preparations, as well as to the individuals of each group. The *officinal names* (or authorized names) in full, with the regular English name, and a brief definition of the nature and natural source of the substance is given. Most Materia Medica names will be found in this list, whilst preparations will be found in the second part of the book, and most easily by consulting the index. Special attention should be given to the spelling of the Latin names and their terminations. For example, suppose our young friend in his first lesson has a drawer labelled "Colocyn;" referring to the list he finds "*Colocynthis*," translated "Colocynth," and described as the fruit of Citrullus colocynthis "deprived of its rind." He naturally desires to know what sort of fruit, what are its qualities, what sort of a plant yields it, where it grows, what it is used for, &c. To get these answers he must go to the Dispensatory, article "Colocynthis," where he will find all he desires to know about it; but *this* inquiry may well be left until he has considerably extended his superficial knowledge of drugs and their correct names.

The immense size of the United States Dispensatory, and its comprehensiveness of detail, render it a formidable object as a text-book for the beginner, until he gets the key to its construction, and finds it almost as easily consulted as a dictionary having an alphabetical arrangement. The greatest difficulty it presents is its fulness, and the longer time necessary to consult it. But it is by no means necessary for the beginner to read each entire article: for instance, in the example above stated, he can easily find that colocynth is a fruit like the mock-orange, growing on a vine with leaves like those of the water-melon, that its pulp is exceedingly bitter and purgative, that it comes from Northern Africa, and enters into several valuable medicines.

In an establishment where the preparations of the Pharmacopœia are made for its own dispensary, the beginner has a great advantage, as from the first he can witness processes more or less interesting, and which arrest his attention. Though at first only as an aid, or perhaps coming in at the close to cleanse the apparatus, he soon learns enough

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to be useful, and then if he is willing and obliging, he has the *open sesame* of rapid advancement. In this way a three months' apprentice has taken charge of the weekly supply of citrate of magnesia in a careful and reliable manner, and has felt encouraged and sustained by his consciousness of being useful, and of advancing in knowledge. When he becomes conscious of a desire to enter the field of book knowledge, and make it assist his observing faculties, and explain his difficulties, a great point has been gained in his onward progress. Let us suppose his first trouble in washing mortars to arise from Prussian blue, which resisting his best efforts he applies for help, and is told to use solution of potassa, the magical effect of which makes a deep impression on his mind. When evening comes he sets to work with the Dispensatory, at the article Prussian blue, and soon gets at sea in chemistry, which he cannot understand, but he succeeds in learning that potash forms a soluble salt with Prussian blue, and thus detaches it from the porcelain surface, setting oxide of iron free. At the same time he glances at "*Potash*," learns its origin from wood-ashes lye, that it is a *base*, neutralizes *acids*, forms *salts*, dissolves *fats* and forms *soap*, and many other facts.

Now it is not to be expected that our young friend has gotten a very clear insight into the chemistry of these subjects, but if intelligent he has seized the leading points, and will not rest until all is understood by subsequent study. The habit of close observation of color, taste, odor, shape of outline, and configuration of parts, should be cultivated as one of the most valuable aids in gaining knowledge, as he progresses from day to day, and by cultivating a habit of using the pencil to imitate the form and construction of objects, whether drugs or apparatus, it will be found to aid the memory decidedly.

We will suppose our lad is set at grinding senna in a Swift's mill, for fluid extract. It is light work but tedious, and in the frequent resting-spells his curiosity is attracted to the drug. He finds several distinctly shaped leaves, notices that at the base they are mostly *uneven*, but some are not, that when chewed the drug colors the saliva quickly, and that it has a peculiar odor. If he is critical he may find leaf-stalks, seed-vessels, &c., and by the time he has ground ten pounds he is pretty well acquainted with the sensible characteristics of senna. When evening arrives he resorts to his Dispensatory and finds that there are several kinds of senna, and it takes him some time to decide that the mixed character of what he had been grinding fixed it as the Alexandrian, or Upper Nile senna. He notes the kind of plant, gets a hint of its commercial history, what it contains, what liquids are best to extract its virtues, what medical properties it has, and what preparations are made from it. He then re-examines the leaves in view of his reading, looks at his school atlas for Nubia and Abyssinia as the country of its growth, and the next time he is sent to a large drug store asks to see a *bale* of senna, and he is pretty well booked up on senna, and will not forget it; all this will take several evenings. Senna is but one of a long list of vegetable drugs that in his first year's experience will practically come to his acquaintance, and by

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following the same course, an outline of whose history will be grasped, and gathered into his storehouse of memory for future use.

At the very beginning of the Pharmacopœia is a notice of the weights and measures used in pharmacy, and at the end of the Dispensatory a much longer notice describing the French and other weights and measures. Now as pharmacy is a business constantly requiring exact quantities by weight and measure, the beginner should from the first familiarize his mind with the officinal weights and measures, and the manner of using the scales or balance, and the measures of capacity, as well as the relations of troy weight to avoirdupois or English weight, and metrical or French weight. He should also try his hand at dividing a given quantity, say a drachm, into ten parts with a spatula, by the eye, and then weigh each one, and see how it varies from six grains, the proper weight of a tenth. For the same reason that he exercises his memory to grasp knowledge, he should exercise his senses and muscles to acquire skill, coustantly keeping in mind the old adage "that whatever is worth doing should be done well." In the simple matter of wrapping packages in paper there is a wide field for skill. Some never learn how to do it neatly, especially doses of powders. Others give so neat and regular a finish to their work as to make it attract attention. The wrapping of bottles and boxes in paper, and especially the tying of bundles, all are worthy of close attention until habitual skill is attained.

In the matter of cutting, and attaching labels to bottles and boxes, the same range of skill exists, and to be always neat requires care in gaining the habit at first.

In the manner of handling the pestle in trituration, in contusion, pill-making, or in emulsionizing, or of managing the spatula in mixing ointments or powders, there is a wide margin for grades of skill and neatness.

Cleanliness in pharmacy is a virtue that ranks with *order*, and without these the shop practice becomes more or less demoralized. Clean glassware, bottles, graduated measures, white mortars, bright spatulas, and a clean, orderly counter, add wonderfully to the pleasure of dispensing, as they do favorably impress the patrons of a store. The habit of restoring bottles to their proper places after using them, that of keeping all receptacles suitably filled ready for use, and that of labelling every vessel or package that is set aside, are among the most useful that contribute to shop order and comfort. The amount of trouble and annoyance saved by habitual attention to these shop morals, by *all* the employès, can only be appreciated by those who have seen the working of both plans, and drawn their conclusions.

It is to ingraft and fix these and other important habits, that our colleges require four years' apprenticeship or training at the dispensing counter and in the laboratory, before granting their diploma; a requirement which should be most strictly carried out.

But a new experience awaits our novice; he is to take part in a chemical operation attended with some care and labor,—the making of Vallet's pill-mass of carbonate of iron. After weighing certain quantities of sulphate of iron and carbonate of soda, he separately

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dissolves them in boiling water containing a portion of syrup, strains the solutions to remove undissolved particles, and mixes them, when cold, in a vessel just capable of holding them, when, to his surprise, a thick, pulpy, bluish-white mixture results, which separates into a solid precipitate aad a clear liquid above. The liquid is drawn off, and its place filled with pure boiled water containing syrup, and the whole intimately mixed, allowed to settle, and the process repeated, and the sediment finally drained on a cloth filter, tied, expressed, mixed with sugar and honey, and on a water-bath evaporated with constant stirring, until when cool it has solid pillular consistence. The points in this process to attract his attention are: the reason that mixing the clear solutions produces a sediment, why boiled water is used, why the washing water is sweetened, why honey is used, and, finally, why a water-bath is employed. After the tedious process of stirring is concluded, and the pill-mass stowed away yet warm in jars, the Dispensatory will answer all these queries clearly and satisfactorily, if appealed to, and he will have added a chemical chapter to his experience, involving the law of double decomposition, and the power of sugar to prevent or retard atmospheric oxidation, and the process of decantation and filtration.

This is only one of many chemical processes that he will be called on to take part in, long before he will be able to attend lectures at college; or, if this is beyond his reach, before he can make progress in the study of chemistry sufficiently to understand chemical reactions. It is this excited curiosity, this desire to understand phenomena daily occurring, that is to stimulate his efforts at self-improvement in knowledge, and finally give him the victory over adverse circumstances. Some of the greatest minds devoted to chemistry in the past have thus begun their career. Scheele, the discoverer of so many valuable organic bodies, Davy and Liebig, so justly celebrated as chemists and investigators, were all at one time apothecary boys, groping in the dark bravely, until they found light for themselves and all others. But our beginner is getting sufficiently advanced to be called a student, he is in his second year, and looking forward to attending lectures next winter, when he will enter systematically on the study of the science of his business, and clear up hundreds of little theoretical difficulties that have bothered him in his progress. He begins to see that botany is necessary to understand materia medica, and that the laws of physics or natural philosophy have much to do with explaining the phenomena of steam apparatus, of solutions, of crystallizations, and of taking specific gravities; and he rightly desires the aid of hand-books. For the former, Dr. Gray's little work, "How Plants Grow," will serve his purpose; or "Lindley's Outlines of Structural Botany;" and for physics, some work like "Ganot's Popular Physics," will do for awhile; but Mueller's will be more satisfactory for advanced students. Special works on manipulation, chemical and pharmaceutical, are of great value. The great book of Faraday on Chemical Manipulation, so simple in its language, but so full in its meaning, has long been out of print; but "Campbell-Morfit's Chemical and Pharmaceutical Manipulations," is a good substitute and well

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illustrated. Bowman's Chemistry for the beginner in analysis, is good; but for the more advanced student, Dr. Attfield's Chemistry, written with a view to the needs of the student of pharmacy is excellent. In fact, the literary aids to the student are so numerous that he is often confused in choosing a guide, and it is of the utmost importance that he should keep his mind clear to his main object, the building up layer on layer, regularly and solidly, the superstructure of his own professional knowledge, on the solid foundations he has laid by his first and second year's devotion to the rudimentary services in the laboratory and at the counter. If successful, his reasoning powers will have been exercised freely, his judgment matured, his memory well stored with facts, derived from study or from observation and experience, and he will be well fitted to receive the honors of graduation, and to go out into the world as a disciple of Esculapius in the service of his fellow-men.—*Proceed. Am. Phar. Assoc.*

NOTES ON SUGAR-COATED QUINIA PILLS.

BY A. B. LYONS, M. D., DETROIT, MICH.

At the request of a physician I recently made an examination of some samples of sugar-coated quinia pills, which are offered for sale in this city. The principal objects sought in the investigation were three, vis: 1st, to ascertain whether the pills contained the full amount of quinia claimed on the labels. 2d, to determine to what extent other alkaloids of bark are substituted for quinia in their manufacture. 3d, to arrive at some simple plan for estimating approximately the quantity of quinia they contain.

The pills examined were from five prominent manufacturing houses, which are designated in this paper simply by numbers. The results as tabulated below, show that such an investigation was not uncalled for. Physicians who prescribe quinia in the form of sugar-coated pills can no longer wonder at the uncertainty of the effects obtained therefrom.

The method pursued in the research was a simple one. The pills were digested in a little water, acidulated with hydrochloric acid, until completely dissolved or disintegrated. Caustic potash was then added in excess, and the mixture was repeatedly shaken with ether to dissolve out the precipitated alkaloids. The residue from the evaporation of this ethereal solution, after drying in a hot air-bath, was accurately weighed, and thus the total amount of alkaloid soluble in ether was determined.

If the quinine were tolerably pure, ether would extract the alkaloid perfectly, and the solution would exhibit no tendency to crystallize, and would leave, on evaporation, an easily fusible residue of a gummy or resinous appearance. Cinchonia, being nearly insoluble in ether, would remain suspended in the aqueous solution. Quinidia and cinchonidia would be dissolved only with difficulty by the ether, separat-

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ing from the solution on slow evaporation, or even without evaporation, in distinct crystals.

Judged by the behavior of the ethereal solution, samples 1 and 2 were tolerably free from admixture of the cheaper alkaloids, a trifling amount of cinchonia alone showing itself. In No. 3, a large quantity of ether was required to dissolve the alkaloid, which was in part thrown down during the evaporation as an amorphous precipitate. Its characters did not in fact correspond exactly with those of any of the common bark alkaloids, but were, perhaps, such as might be exhibited by quinia after the action of excessive heat. No. 4 contained no alkaloid except quinia. No. 5 contained a very large proportion of the less soluble alkaloids. The ethereal solution crystallized freely, even without evaporation. The pills themselves were of a dark color, and, even after extraction with ether, the alkaloids yielded, on treatment with dilute sulphuric acid, a strongly colored solution. Evidently the "quinine" employed was an extremely crude article. These pills also, alone out of the five samples examined, contained an excess of acid.

In a second series of experiments, made by way of confirming the results already obtained, the amount of quinia was estimated from the sulphuric acid contained in the pills. Since sulphuric acid is easily estimated by a volumetric process, this method might be employed by those who have not the appliances for making gravimetric analyses. (Ten grains of quinia sulphate requires for precipitation 2·814 grs. of barium chloride.) For obvious reasons, however, this plan cannot be recommended as affording by itself any reliable information in regard to the amount of quinine present.

The sparing solubility of the neutral sulphate of quinia, and the facility with which it crystallizes from a solution in hot water, suggests a simple method of determining whether the pills contain the full amount of quinine claimed by the label. If two grains of quinine be dissolved in six fluidrachms of hot water, crystals form sparingly in the fluid within a few hours after cooling. With a smaller quantity of water the crystallization is, of course, more rapid and abundant. I found that two grain pills from samples 1 and 2 yielded crystals when dissolved in five and a half fluidrachms of water. No. 3 crystallized only sparingly from a solution in one fluidrachm, and that in short massive crystals, totally unlike the delicate fibres and needles of genuine quinia. No. 4 crystallized very sparingly from three fluidrachms. No. 5 from two and a half, after the excess of acid had been carefully neutrallized with dilute water of ammonia.

It will be seen, by inspecting the table, that these results harmonize, except in the case of No. 3, with those obtained by actual analysis. I can hardly think that anything likely to be used as an excipient can interfere with the success of this test, which is moreover so simple that it can be applied by those who make no pretensions to skill in chemical manipulation. The test may be applied practically thus: Dissolve a two grain pill in a fluidrachm of water, by boiling in a test tube. On cooling, the fluid should set into a dense network of fibrous crystals. Add a fluidrachm of water, or a larger quantity, if the first

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crystallization has been satisfactory, and heat till the crystals redissolve. In this way proceed until crystals form in the solution only sparingly after cooling. The volume of fluid, in drachms, multiplied by 100, and divided by six, will give now, approximately, the percentage amount of true quinine in the pill.

The annexed table exhibits the results of my experiments, and requires perhaps no further explanation or comment:*

	Gross weight of 2 gr. pill.	Alkaloids soluble in ether, from five 2 gr. pills.	Sulphate of quinia from five 2 gr. pills.	One 2 gr. pill crystallizes from water.
No. 1.	4·8 grs.	7·15 grs.	9·55 grs.	5·5 drachms.
No. 2.	4·7 "	7·1 "	9·5 "	5·5 "
No. 3.	3·8 "	5·53 "	7·4 "	1· "
No. 4.	3·7 "	4·65 "	6·2 "	3· "
No. 5.	4· "	5·7 "	4·4 "	2·5 "

—*Am. Jour. Phar.*

* We regret that the names of the manufacturers of these pills were not given, as the innocent are likely to suffer with the guilty. EDITOR PHARMACIST.

NOTES ON THE ARECA PALM.

BY JOHN R. JACKSON, A. L. S.

Some interest having lately arisen among pharmacists with regard to the areca palm, (areca catechu, L.) owing to its proposed introduction into the British pharmacopœia as an officinal plant, a few notes on the tree itself may not be out of place. The areca palm is a handsome tree growing to the height of 40 to 60 feet, with slender, erect trunk, averaging from one to two feet in circumference. It has regular pinnate leaves, and long, linear leaflets, of a rich dark green color. The circumference of the trunk is annulated or distinctly marked with the scars of the clasping petioles of former leaves. The fruits are each about the size of a hen's egg, consisting of a fleshy looking drupe, which, however, on cutting, is found to be very fibrous, containing a seed about the size of a nutmeg, and like that well-known spice, ruminated or marked with thick, reddish-brown irregular lines throughout its entire substance. These fruits are borne in large bunches, springing from the crown of the leaves. The spathe itself is used in some parts for making drinking vessels, for nailing over the bottoms of boats, and various other purposes.

The tree is best known as the betel-nut palm, and is cultivated in

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nearly all the warmer parts of Asia for the seeds, which are not only chewed in large quantities by the natives, but are shipped to other countries. The quality of the nuts depends much on their appearance when cut through. If the white or medullory portion, which intersects the red or astringent part, be small, and has assumed a bluish tinge, and the astringent part is very red, the nut is considered of very good quality; but when the medullory part is in large quantity, the nut is considered more mature and less astringent. In the north of China small pieces of the nut are boiled, and the decoction is taken as a domestic remedy in various visceral afflictions. Though the use of the betel as a masticatory turns the teeth black, it is said to preserve them from decay in a remarkable manner, and this may be the reason some English chemists have introduced the use of pulverized charcoal as a tooth powder.

In Borneo, the flowers, which are fragrant, are mixed with medicines and used as charms for the cure of many diseases. In some parts of India the juice of the young tender leaves mixed with oil is used as an embrocation in cases of lumbago, and a decoction of the root is a reputed cure for sore lips, so that whatever may prove to be the value of the areca nut as an anthelmintic, it is certain that the tree is much esteemed for its numerous uses in the East.—*London Pharm. Jour.*

RESINA PODOPHYLLI.

Extract from an Inaugural Essay.

BY FREDERICK B. POWER.

The writer after proceeding according to the process of the Pharmacopœia, for the preparation of resin of may-apple, found the amount of soluble matter abstracted by the alcoholic menstruum, to be about 4 per cent., and after repeated washings in cold water there remained about 3 per cent. The same result was obtained from several operations with selected rhizomes.

The mother liquor remaining after the precipitation of the resin, together with the washings therefrom, was concentrated by evaporation, when a portion of resinous matter separated, which was found to be entirely soluble in alcohol, and precipitated by water. Only partially soluble in ether which separated it into two portions. The portion insoluble in ether was by experiment found to be only slightly cathartic in five grain doses, and attended by no unpleasant effects, while the ethereal resin taken in the same amount proved to be an active emeto-cathartic, very violent in its action, attended with severe griping, a sense of dryness in the throat and dilation of the pupils, the effects lasting about 24 hours. This is considered identical with the first precipitated resin, which it is demonstrated is not a *true resin.*

The residue contained in the percolator, after exhaustion by alcohol, was macerated with cold water for five days, filtered and evapo-

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rated to the consistence of an extract, possessing a sweetish odor, in color and taste closely resembling Euglish Extract of Taraxacum. This was taken in doses of 10 to 20 grains, producing only slight laxative but decided tonic effects. Although proving that the rhizome after exhaustion by alcohol is almost destitute of cathartic properties, yet the extract obtained in this way may merit some application.

Prof. Maisch in his remarks on the foregoing, says; "that several years ago in endeavoring to determine the amount of berberina in the officinal resin, he treated it with boiling water, which almost completely dissolved it, and berberina was not discovered. This observation was conclusive proof that the term resin is a misnomer, although it is the best descriptive term that in our present state of knowledge can be applied. But the behavior to water as indicated, appears also to point to a method whereby the constituents of this so-called resin, may be separated from each other, or their complete separation be verified. To the above facts I have since called attention to my lectures, endeavoring to induce some one, having sufficient time at command, to investigate the true chemical nature of this preparation."—*Am. Jour. Pharmacy.*

ON SAPO VIRIDIS.

BY P. FREDERICK LEHLBACH.

Query 7.—"Sapo viridis" vel "sapo mollis" is sometimes prescribed. What is the easiest plan of making it from olive oil and liquor potassæ?

The knowledge of soft soap—"sapo mollis"—dates as far back as that of soap generally; it is as ancient as history. Plinius speaks of two kinds of soap, the hard and the soft, as in use among the Gauls and Germans, attributing to the former the discovery of it, while the latter are credited with producing a superior quality. In the manufacturing of soap, that of the soft variety plays a more important part than is generally supposed, and especially in European countries the quantity used is enormous. Soft soap being a potassa soap, with this alkali in excess, is a more powerful detergent than the hard, and is consequently employed on the continent of Europe in all cases where hard soap is insufficient for cleansing purposes, or is too expensive. But by far its most important use is in those countries where the bleaching of linen and manufacturing of calico are extensively carried on. In those branches it has superseded the use of hard soap, as a cleansing agent, altogether.

Commercial soft soap differs greatly in appearance. This difference is due to the variety of oils or fats employed. Thus, for instance, in Françe and Germany the oils of different seeds are worked, especially hemp, rape, and flax, while in Scotland and Ireland it is commonly made from fish oil, and sometimes oleic acid. When made from hempseed oil, it is of a beautiful dark-green color, which, by consumers, is looked upon as an indication of superior quality. On account of this color the name of "sapo viridis" is retained in the

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German Pharmacopœia, although the soap usually dispensed by pharmacists in Germany, if not entirely made from fish oil, contains at least a portion of it, to which the penetrating, propylamin-like odor is due. When "sapo mollis" is made from fatty oils, which do not impart this color to it, it is the custom to produce it by the addition of indigo, which is generally finely powdered and boiled with water, until thoroughly saturated, before it is added. In some parts of Europe it was colored black by tannate of iron, hence the name "sapo niger" in some of the older pharmacopœias. All these remarks have reference to the soft soap made in Europe. That manufactured here is usually made from refuse grease and oils, is of a much softer consistence, very impure, and not being used to any great extent, little attention is paid to its preparation. Although soft soap should be a pure potassa soap, yet the commercial is often a mixture of it and soda soap, the latter being cheaper and able to retain more water, without becoming too soft, thus increasing the bulk and the profit of the dealer.

All commercial soft soap contains an excess of potassa; or, in other words, are potassa soaps in potassa.

These few remarks about the commercial varieties may be of interest to some, since in dispensing "sapo mollis," "sapo viridis," "sapo niger," "kali oleinicum," or whatever synonym may be used in the physician's prescription, we dispense the article of commerce.

The query asks for a formula for "sapo mollis" made from olive oil and liquor potassæ; but as the officinal liquor potassæ of 1.065 specific gravity contains little more than 5½ per cent. of potassa, it is impossible to bring about a thorough saponification with it. It would be necessary, therefore, to concentrate the solution by evaporation, which would be merely a loss of time. All experiments were, therefore, made with the dry potassa of the Pharmacopœia.

Formerly the oil or fat to be saponified was first heated with a lye of not more than about 8 per cent. of potassa, and the stronger one added after saponification had partly commenced. The method now pursued by experts is to use a lye of uniform strength throughout the process, but commencing the operation with only about the fourth portion of the whole quantity of lye employed. The following working formula for "sapo mollis," from olive oil and potassa, is herewith submitted, by which, if carefully followed, a good result is obtained:

Take of	Olive Oil, - - - -	16 troy ounces.
	Potassa, - - - - -	6 troy ounces.
	Water, - - - -	a sufficient quantity.

Dissolve 5 troy ounces of the potassa in 2 pints of water; add 8 ounces of this solution to the oil in a suitable porcelain vessel and place over a moderate fire. When the mixture has become quite thick, gradually add the remainder of the potassa solution. Continue the heat, occasionally stirring, until the mass has assumed a yellow, transparent gelatinous form. Dissolve the remaining 1 ounce of potassa in 2 pints of water and add it to the mass. Evaporate to a proper consistence. On adding the first 8 ounces of the potassa solu

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tion to the oil and applying heat, a white emulsion-like mixture is the result, which in a little while begins to froth, becoming thinner. The heat being continued, it gradually thickens again, saponification having partially commenced, and when it no longer drops from the wooden spatula used for stirring, the addition of the remaining potassa solution is commenced. It is best to use the precaution of warming the solution, for if added cold to the hot mass in the evaporating-dish, this is likely to crack. Eight ounces of the solution are added at a time, always allowing the mass to become quite thick before making an addition. When all of the two pints of the potassa solution has been added, the soap-boiling in reality commences. The process is hastened by raising the temperature slightly, and I have also observed that it is advantageous not to stir continually, only often enough to prevent the mass from scorching at the bottom of the vessel. After applying heat for awhile, yellow, transparent portions will be noticed in different parts of the mass, increasing in dimensions and number, which finally give a yellow tint to the mass, which at the beginning was cream-like. The heat being continued, the whole will at length be one yellow, transparent gelatinous mass. The oil has all been saponified. This is easily tested by placing a little of the mass in a test-tube and shaking it with sulphuric ether, which, when poured on bibulous paper, will evaporate without leaving an oily stain. It now only remains to add the solution of the 1 ounce of potassa in 2 pints of water. This is for the purpose of dissolving the soap and giving to it the excess of potassa, on which to a great extent the medicinal virtue of "sapo mollis" depends. Before the addition of this, the soap already contains a slight excess of it, as olive oil requires only from 20 to 25 per cent. of potassa for its thorough saponification. The quantity of water in the second or weak potassa solution, may be increased or diminished according to the degree of consistence desired. In winter it will likely be necessary to increase it; the experiments on which this formula is based were all made in August. It may yet be mentioned that it is necessary to use either distilled, rain or a very soft water in order to obtain a good result. The "sapo mollis" thus prepared, generally becomes a little softer on standing a few days, is of a beautiful amber color, perfectly transparent, and is of course decidedly alkaline in reaction and taste. It forms a rich lather with water, which dissolves it readily. Its detergent properties are powerful. When we consider that the soap thus prepared is always of uniform quality and strength, superior to the commercial article, it would seem that in countries where it is extensively used by pharmacists, and has a place in the Pharmacopœia, it would be of greater satisfaction to the conscientious pharmacist to prepare it in his laboratory, than to make use of the soft soap of commerce. If superintended, the apprentice could make this preparation, and would perhaps profit more by ocular observation regarding the interesting chemical phenomenon of saponification, than by days of reading. By some practitioners, in combination with sulphur, it is always employed in itch, as also in a large number of cutaneous diseases. Hebra, in fact the modern school of German dermatologists, use it very extensively, and

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its beneficial employment by physicians in this country would doubtlessly become much more frequent if a better, more uniform, more reliable, and more elegant form were accessible than the common commercial soft soap. For if, according to the lamented Liebig, the amount of soap used in a country forms a criterion of the culture and civilization of its inhabitants, the excellency and elegance of the soaps used must certainly be an additional and still finer index.—*Proceed. Am. Pharm. Assoc.*

NOTE ON SULPHURIC ACID, U. S. P.

BY W. H. PILE, M. D.

This acid, according to the present and previous Pharmacopœias, should be of specific gravity 1·843. As remarked by Dr. Squibb several years ago and repeated at the late meeting of the American Pharmaceutical Association, it is impossible to procure sulphuric acid of this density. Upon actual trial with recently made acid, none was found to be over 1·835 at 60° F. The question has arisen, why give the officinal gravity to an acid, which druggists cannot make for themselves, at a higher density than the manufacturing chemists can furnish?

I suggest as a reason for this, that the manufacturers of sulphuric acid always advertise and sell their acid as being of a standard density of 66° B., and the framers of the Pharmacopœia, knowing this to be so, gave the corresponding specific gravity at 1·843, that being the usual number given in many chemical works as equivalent to 66° B. At any rate I am quite certain that if the specific gravity of the acid, so called 66°, had been experimentally taken it would have proved to be only 1·835. It is just here that a source of trouble arises. Any one upon examination of the tables appended to various chemical works, will be struck with the discrepancy which occurs in giving the specific gravity of Beaumé's hydrometer—England, France, Germany, each have a different scale. In this state of uncertainty one of our fellow members, Wm. H. Pemberton, in 1851 selected a scale on this very account, namely, that the strongest sulphuric acid which manufacturers could readily make had a gravity of not over 1·835; calling this gravity 66° B., all the remaining degrees were readily calculated. From this scale, which will be found in the U. S. Dispensatory, I have always graduated my hydrometers, and have for 23 years and over supplied nearly all the acid works of our country, thus fixing the density of sulphuric acid at 66° B., equal to 1·835 specific gravity, and which density should certainly be that of the officinal sulphuric acid.—*Am. Jour. Phar.*

Olive Oil should be kept not only from the sun and heat, but also from the light. A cool cellar, and in the cases in which it is received, with all its wrappings on, is the best place for it.

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ON THE RIGHT USE OF DISINFECTANTS.

BY H. LETHEBY, M. B., M. A., ETC.

(Continued from page 63.)

Read at the Meeting of the Society of Medical Officers of Health.

8. CHARCOAL AND OTHER POROUS SUBSTANCES are powerful oxidizing agents, and they owe their action to the property which they possess of condensing upon their surface and within their pores large quantities of vaporous and gaseous matter, which by the very force of condensation, they bring into contact with atmospheric oxygen, and thus by a process of slow combustion burn up organic miasms almost as thoroughly as if they were passed through the ignited coals of a furnace. In the case of wood charcoal it will absorb about nine times its volume of oxygen and ninety times its volume of ammonia.

This property of absorbing offensive effluvia was described by Löwitz, a German chemist, at the close of the last century, and in 1805 Giraud proposed to use it as a means of disinfecting night-soil. In 1814 the subject was further investigated by Theodore de Saussure, who ascertained the exact volumes of different gases and vapors which wood charcoal would absorb. Since then the question has been further explored by Figuier, Bussy, Thenard, Allen, and Pepys, Count Morrozzo, and others; but it was not until the year 1853 that the facts of the inquiry began to acquire practical importance. In that year Dr. Stenhouse, pursuing an experiment of Mr. John Turnbull, of Glasgow, found that putrid organic matters, when covered with a layer of charcoal, were quite free from offensive smell, notwithstanding that they putrefied and decayed with more than usual activity.

The sole condition necessary to this is the free access of atmospheric air, which the charcoal uses in oxidizing the putrid miasms. It is useless, therefore, to expect a beneficial action of the charcoal unless it can obtain oxygen; but, getting this, it will carry on its *eramacausing* power for an indefinite time. The applications which have been made of this power are numerous: 1. There is the respirator of Dr. Stenhouse, which arrests putrid miasms, and enables us, as I know from experience, to work comfortably in the most filthy atmospheres. 2. There is the air-filtcr, which I shall presently describe as applicable to the purification of the air of sewers, etc. 3. There is the charcoal water-filter, which, with water containing oxygen, or worked intermittently, will purify water from the foulest matters; and other applications of it will occur to us presently.

Again, every one is familiar with the purifying power of common earth; the graveyards, indeed, of every large city, testify to the enormous quantity of organic matter which may be disposed of through its agency; and looking at the magnitude of the subsoil filth of this city, it is surprising how little it has affected the virgin gravel a few feet below the surface. All this is referable to the catalytic action of the porous soil, whereby the countless tons of decomposing matters have been oxidized and converted into harmless nitrates, which

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abound in the city wells, and which might, in case of an invasion, furnish our volunteers with abundance of "villanous saltpetre."

9. Air and Water are likewise powerful agents of destruction, and show their beneficial action in the one case in the effect of good ventilation, and in the other in the disintegration of organic substances as they flow along in our polluted rivers—thus giving them the means of rapid self-purification. A heavy storm of rain, too, is a great purifier of the air, and is often the turning-point in the progress of an epidemic; but besides this, water, by reason of endosmic action, is inimical to the corpuscular structures of many specific contagia, for by bursting their cell-like envelopes, it destroys their vitality.

10. Disinfection by Heat.—The power of fire as a disinfectant is well known, and has been recognized from the remotest time. The sacrificial altars of early nations were the rude methods by which this agent was employed; and so fully did the ancients believe in its salutary effects, that in time of pestilence it was often resorted to as the only effective means of purifying the air. Caius, in his "Boke of Counseill against the Disease commonly called the Sweate or Sweating Sickness," in 1552, advises the use of "fyres either in houses or chambers, or on that side the cities, townes, and houses that lieth toward the infection and wynde commyng together, chefely in mornynges and eueninges, either by burnyng the stubble in the felde or windfallynges in the woodes, or otherwyse at pleasure. By which pollicie," he says, "skilful *Acron* delivered Athens in *Gretia*, and diuine *Hippocrates Abdera in Thratia* fro ye pestilence, and preserued fro the same other the cities ih *Greeco*, at diverse times coming with the wynde fro *Ethiopa*, *Illyria*, and *Pœonia*, by puttyng to the fyres wel smelling garlandes, floures, and odoures, as *Galene* and *Soranus* write. Of the like pollicie for purgyng the aier were the bonfyres made (as I suppose), for long time hetherto vsed in ye middes of summer, and not onely for vigiles." In the popular mind there has always been a notion that the plague in London was exterminated by the Great Fire.

The temperature at which infectious matter is rendered inert has lately been a subject of keen controversy, chiefly in relation to the temperature at which the vitality of living germs, and minute infusorial creatures is destroyed. The late Dr. Henry, of Manchester, demonstrated experimentally that the vitality of vaccine matter is destroyed at a temperature of 140° F., and that the virus of scarlet fever is inert after being exposed to a heat of 204° F.; but some of the lower organisms appear to be more tenacious of life, for, according to Dr. Crace Calvert, the common vibrio will bear a temperature of nearly 300°, and his black vibrio, which appears to be a very salamander of animalcules, is not killed by a heat ot less than 400° Fahr. After a long investigation, however, before the Académie des Sciences of Paris, it was unanimously agreed by all parties to the controversy of spontaneous genesis that none of the lower organisms or their germs would resist in air a temperature of 130° C. (=266° Fahr.), and in liquid a temperature of 110° C. (=230° Fahr.). This, indeed, was the temperature fixed by Pasteur himself, although many of the

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members thought that 100° C. (=212° Fahr.) was sufficiently high to destroy all vitality. In most cases in fact, a temperature of 180° Fahr. is sufficient to destroy infusorial life, for that will coagulate albumen, of which they are made. Assuming, however, that it is desirable to use as high a temperature as possible for disinfection, it is important to know what is the effect of heat on textile fabrics. Up to a temperature of 250° Fahr. most of these fabrics are unchanged, unless the exposure is maintained for many hours, when they will become discolored and slightly brittle. Above this temperature the change is more marked, and with a dry heat of 300° Fahr. cotton fabrics are slightly charred, and therefore spoilt. At 400° they become dark brown, and crumble into powder when rubbed. At 500° gaseous hydrocarbons are produced, and at 600° all vegetable and animal tissues are converted into charcoal, with the evolution of empyreumatic oil and gas. It would seem, therefore, that, for practical purposes, a heat of 250°, aided by a jet of steam, for the purpose of diffusing the temperature and helping its action, may be safely applied to textile fabrics.

In the case of noxious vapors, however, as the fetid effluvia from tallow-melting, bone-boiling, soap-making, etc., the organic miasms must be destroyed by actual combustion, and to this end they must be conveyed into and through a large body of fire. In many cases it is necessary to remove aqueous vapor from the miasms by means of a scrubber or condenser before they pass to the fire, and in all cases the products of their combustion should be conveyed into a tall chimney-shaft, in order that a good draft may be secured for the delivery of them to the furnace fire.

The employment of heat for disinfecting purposes should be taken advantage of on all possible occasions. Foul linen from the sick-chamber should be immediately boiled in water, or steeped in boiling water. Milk, whether tainted or not, should always be boiled before using; and in cases of suspicion as to the contamination of drinking water, it should be boiled and filtered through animal charcoal, for there is no reliable evidence that any of the common agents of infection will resist a temperature of 212° Fahr. applied in this manner for a few minutes. Lastly, meat should be thoroughly cooked, so as to destroy parasitic and other infection.

And now, having broadly examined the several powers and modes of action of the leading disinfectants, we will briefly consider the way in which they may be most advantageously applied, taking as examples the common cases which present themselves in actual sanitary practice.

First and foremost of these cases is ***disinfection of the sick-chamber and of the articles contained therein.*** This is avowedly a difficult matter, for the presence of the sick person and his attendants prevents the use of volatile or aërial disinfectants in such quantity as to be of undoubted service; chlorine, for example, or hypochlorous acid, or sulphurous acid, or carbolic acid vapor, must be present in the atmosphere in the proportion of at least one part per 1000 to be effective, and in this proportion they are so irritating as to be irrespirable.

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While, therefore, the room is occupied by the living, we must rely on other means of disinfection and the immediate destruction of tainted articles. Matters discharged from the body should be received into a vessel containing active disinfectants, as about half a pint of either of the following solutions, namely: A solution of two pounds sulphate of iron (green copperas) in a gallon of water (=20 per cent., specific gravity 1·096); or a solution of one quart of chloride of zinc (Sir William Burnett's fluid) to three quarts of water (=about 8 per cent. solid chloride, specific gravity 1·077); or a solution of four fluid-ounces of carbolic acid (Calvert's No. 5) to a gallon of water (=2·5 per cent.) All articles of clothing, bedding, etc., should be boiled in water or plunged into boiling water before they are taken from the room, and in addition to this they should be steeped in a solution of carbolic acid of the above-mentioned strength. Special agents of infection—as the desquamated cuticle in scarlet fever, and the phagedenic discharges of ulcers and foul wounds or sores—should be the subjects of constant attention; pomades and other matters being freely employed to the surface of the body in the former case, and antiseptics and disinfectants in the latter. Besides this, all superfluous articles of furniture, as carpets, curtains, etc., should be removed from the room early in the case, and free ventilation and the utmost cleanliness should be always practised—everything like soiled rags, dressings, etc., being immediately burnt. As regards the use of aërial disinfectants, I am inclined to think that acid vapors are the most effective—as chlorine or chloride of lime, or acetic acid—for these only are capable of destroying the vitality of vaccine lymph, and therefore, by inference, of other contagia; besides which they sweeten the atmosphere and make it more pleasant for respiration.

When, however, the room is vacated, disinfection of it may be practised with the most perfect success.

In the first place, all the articles contained in it should be spread out, so as to receive freely the sulphurous acid fumes which are to be generated therein; and, having closed the windows and stopped up as completely as possible every aperture and outlet from the room, measures should be taken for producing the needful quantity of sulphurous acid. This should not be less than one per cent. of the air of the apartment. Now, as a cubic foot of sulphurous acid is produced from 603 grains of burning sulphur, it is evident that every 100 cubic feet of space will require at least this quantity of sulphur for disinfection. To be certain of the results, however, it is advisable to use the sulphur in slight excess—say an ounce and a half for every 100 cubic feet of space. The sulphur may be safely burnt in a shallow pipkin or coarse earthenware saucer containing some live coals or a little bisulphide of carbon; in fact, this latter compound, if accessible, is the best form in which the combustion of sulphur can be effected; for it contains about 84 per cent. of sulphur, and is very combustible. The pipkin or saucer should be supported upon a pair of tongs laid across a pail of water, so that in case of accident the burning sulphur may fall into the water and do no injury. After a period of six or eight hours the room may be opened for ventilation and the several articles

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be spread out for an airing, or taken to the disinfecting chambers for still greater safety. The floor and painted parts of the room should be then thoroughly cleansed and the ceiling treated with limewash.

2. *Infected Clothing and Bedding* should be subjected to a further process of disinfection in the chambers provided by the local authorities for that purpose. These are a room or chamber for exposure to the concentrated fumes of burning sulphur (from 4 to 5 per cent. of them in the air); and next a chamber for killing parasites by heat. This should be so constructed that its temperature can be well regulated and maintained (at from 240°to 250° Fahr.) for four or five hours. It should be self-regulating and self-registering, in this respect, and, therefore, be easily managed. The apparatus in use in the city of London for this purpose was constructed by Mr. Leoni, and it is very effective in its action, for during the last two years we have disinfected 2583 articles of clothing, bedding, etc., with the most perfect success. In fact, during the recent epidemic of smallpox, nearly 2000 articles were thus treated, and I am not aware of a single case in which it was not successful. This accords with the experience at the several smallpox and fever hospitals of London, and shows that, whatever may be the effect of such treatment upon Dr. Crace Calvert's black vibrio, it is abundantly efficacious in the case of common contagia, be the virus what it may.

3. *The Treatment of Dead Bodies.*—This is a matter which frequently demands attention, as when bodies are kept in rooms occupied by the poor, or are brought to the mortuary for safe custody. I have already told you that carbolic acid has been most successfully employed by Dr. Devergie at the Morgue in Paris for the preservation of the dead. As little as one part of the acid in 2000 of water, freely applied to the corpse, will prevent putrefaction. A sheet, therefore, saturated with a solution of one per 1000 of the acid and applied to the body will preserve it. So also will a couple of pounds of good carbolate powder, containing 12 per cent. of carbolic acid. placed in the bottom of the coffin. Metallic salts also will preserve the dead, and in some cases they are preferable to carbolic acid, as they are without odor; thus sawdust, nearly saturated with a solution of chloride or sulphate of zinc (specific gravity 1·077), may be placed around and over the corpse when in the coffin, and in this manner decomposition will be arrested.

I might here mention that the diseased and putrid meat seized in the city, amounting to nearly two tons per week, is disinfected with crude carbolic acid before it is sent away from the markets; and this not only prevents decomposition, but also prevents the use of the meat for improper purposes.

In the case of old burial-grounds which are offensive, as well as church vaults, the best means of disinfection is the covering of the ground with fresh earth to the depth of several inches, and the planting of trees and sowing of grass. In this way we have dealt successfully with the city graveyards—26 in number, and covering a superficial area of about 48,000 square yards, in which, according to moderate computation, there are not less than 48,000 tons of human

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remains. Church vaults should be disinfected, by first opening the vaults, exposing them freely to the external air, and throwing into them a quantity of quicklime. The coffins should then be rearranged crossways like bricks in a building, and filled in with dry earth or mason's rubbish, with which about 5 or 10 per cent. of vegetable charcoal has been mixed. Ventilation should then be brought into connection with the vaults by means of an upcast and downcast shaft of the size of a rain-water pipe, and the whole closed in. It was thus in 1860 that the late Mr. Grainger and myself proceeded to disinfect all the vaults, amounting to 250 in number, of the 71 city churches. These vaults contained the coffins and remains of many thousand dead bodies; at least, 11,000, in a very offensive condition; and the effect of it has been most successful. When bodies are removed from the vaults to other places of burial they should be inclosed, coffins and all, in cases containing carbolate of lime powder in good quantity.

4. *Sewage and Sewer Gases.*—The best disinfectants of sewage are the mineral salts, as the salts of iron and alumina in conjunction with lime. Ordinary sewage subjected to the action of from one to two parts of each of these agents per 7000 of sewage is immediately disinfected, the flocculent matters being rapidly precipitated, leaving a clear supernatent water which may be safely distributed upon land, or allowed to flow into a running stream of moderate volume—as from ten to twelve times that of the defecated sewage. So effective is this operation that it ought to be universally applied to the sewage of towns when it is not discharged into the sea. The matters of cess-pools and privies require the application of large quantities of metallic salts—the best being sulphate of iron (green copperas) or chloride of zinc—either of which should be used of the specific gravity of about 1·100.

Sewer gases are easily disinfected by vegetable charcoal in the manner already explained—the charcoal being placed upon trays in boxes which are situated in the course of the ventillating shafts from the sewers or drains. Many years ago I advised the adoption of this plan in the city of London, and there is a large district, eastward of Bishopsgate street, where all the sewer ventilators are fitted with the charcoal air filters. The district is in the filthiest quarter of the city; it contains 1700 houses, occupied by about 14,000 inhabitants, and the total length of the sewers of the district is about 25,587 feet. Along these there are 104 air-shafts fitted with these ventilators, 265 trapped gullies, 15 flushing tanks, and 26 side entrances. The air-filters consist of an iron box, eighteen inches deep and fourteen inches square, containing a movable frame of six trays or seives, upon each of which there is a layer of wood charcoal, in pieces as large as filberts, about two inches deep. Our experiments were commenced in 1860, and they have been maintained with perfect success until the present time, for they are still in action. I have repeatedly submitted the charcoal from the ventilators to chemical examination, and have always found that it contains abundance of nitrate, together with a peculiar alkaline salt of a nitrogenous nature, with associated hydrocarbon. These ventilators are best fixed where they are protected from actual wet, as against the

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sides of houses, or in the course of a shaft or pipe carried up from the soil-pipe of the closet. In such situations their action is continuous for many years, and they should always be thus used where foul gases escape from the soil-pipe, the drain, or the closet of a house. Air-filters of this description have been adopted and applied with more or less success by Mr. Rawlinson, Mr. Baldwin Latham, and Mr. Bazalgette.

5. *The Offensive Gases and Infected Air* of noxious and unwholesome trades are easily destroyed by fire—there being contrivances for conveying the foul gases first through scrubbers or condensers and then into the back part of the ash-pit of the furnace fire. In this way moisture and other condensable matters are removed, and the residual gases and vapors are consumed by the glowing fire through which they must pass before they reach the chimney-shaft. By carrying the vapors to the back of the ash-pit of the furnace we insure their combustiou, for when the ash-pit door is closed (as it ought to be) the draft is so powerful that it draws the vapors from the chambers or boilers in whicn they are generated and forces them through the furnace fire.

In some cases the air becomes so loaded with minute particles of dust, etc., as to be extremely irritating. This is so in cotton mills, and with flock workers, feather cleaners, stone and steel grinders, chloride of lime makers, millers, firemen, etc. The remedy for this is easy, for a pocket-handkerchief over the face, or a respirator packed with cotton-wool, will shut out all noxious solid particles—in fact the power of cotton-wool is so great in arresting the minute particles of matter, germs and others, which float in the atmosphere, that, according to Prof. Tyndall, it is capable of producing an atmosphere absolutely free from dust, which will bear the severe test of his electric beam. Schroeder and Pasteur say that air filtered through cotton-wool is deprived of the power of producing infusorial life. Here is an experiment which is very striking in this particular: in these flasks I have a super-saturated solution of sulphate of soda, which, in a state of active ebullition, was closed with a plug of cotton-wool, and in this state it has been allowed to cool. Atmospheric air, of course, has entered the flasks to take the place of the condensed steam, but in so doing it has been strained by the wool, and the solution has failed to crystallize. When, however, I remove the plug of cotton-wool, you will remark that the liquid instantly becomes solid, in consequence of the rapid formation of a mass of crystals. This is no doubt due to the falling in of a few particles of atmospheric dust, which were floating by at the time of the withdrawal of the cotton plug, and which immediately became nuclei for the growth of the crystals.

A still better respirator than cotton-wool is that of Dr. Stenhouse, which consists as I have said, of a layer of granulated charcoal. I have used one of them successfully on many occasions when analyzing dead bodies and other putrid matter in cases of suspected poisoning.

With respect to street dust, attempts have been made to keep down the nuisance by means of deliquescent salts dissolved in the water

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used in street watering, but such contrivances are exceedingly objectionable, as they not only keep the roads at certain times in a dangerously slimy and slippery condition, but they also, when dry, get blown into the shops, and falling upon delicate goods, spoil them by their deliquescent property. Cooper's Patent Salts in this country, and Marcus' Patent Salts in America, are examples of this kind of thing. They are solutions of common salt and chloride of calcium or magnesium in water, the specific gravity of the solution being from 1·040 to 1·085. Both of the patents have been tested in America and on the Continent and have signally failed.

6. *Shambles*, *Slaughter-houses*, *Cattle-layers*, *etc.*, should be kept swept and wholesome by strict attention to cleanliness, and by the frequent use of cream of lime, with a little chloride of lime as whitewash.

7. *Breweries*, *Brewing Utensils*, *and Distillers' Vats* are easily and effectively cleansed and disinfected by means of sulphurous acid or a strong solution of bisulphite of lime, aided in the case of fungoid casks by a jet of steam.

Lastly, the purification of *Water* is insured by a few drops of permanganate of potash solution (Condy's fluid) or of chlorozone, leaving them to act for a few hours, and taking care that the pink color is distinctly maintained to the very end of the process. Boiling the water for several minutes, and, after allowing it to cool, filtering it through animal charcoal, is also a safe method of disinfection. The filters of the London and General Water Purifying Company are admirably adapted for this pnrpose, as they contain a large volume of charcoal, which can be aërated by intermittent filtration. I find, indeed, that water thus filtered is absolutely free from organic taint, looking blue like distilled water when examined in large volume, as in a glass tube two feet in length; and the action of the filter, is so enduring that it is maintained in the case of ordinary water for more than a year. A little alum or sulphate of alumina, added to the water before filtration, aids in the separation of organic matter.

And now, gentlemen, in leaving the subject and inviting you to a discussion of it, I have only to say that I have carefully avoided a controversial treatment of it, not merely in respect of the possible or even probable causes of contagion, but also in respect of the many kinds of disinfectants which are daily advertised for public use. It is true that most, if not all, of these have come under my observation, and have been the subjects of experiment; but I have not dwelt on this, for my principal object has been to show you what, in my individual experience, I have found to be the most effective means of dealing with the several kinds of infection which almost daily occur in our sanitary practice.—*Medical Times and Gazette.*

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QUACKERY.

BY OTTO L. REIFSCHNEIDER.

According to an article which appeared in late pharmaceutical journals, an action for libel was brought against the "American Agriculturist" by a Dr. Ryan, a patent medicine vendor. The judge who presided over the case gave the opinion that a medicine that claims to be an antidote, but is not, is calculated to deceive and is a fraud, etc.

Here we have the opinion of the judge, in accordance with the interpretation of the law. Deception and fraudulent antidotes are superabundant in these days. A demand for such is created by the aid of numerous conspicuous handbills, presumptuous newspaper advertisements, accompanied with wonderful pretentions and extraordinary recommendations. The bawling noise produced by some hireling charlatans on street corners also adds its share towards accomplishing the object. As a general rule, it is found necessary by the nostrum manufacturers to charge exhorbitant prices for their products, in order to make them appear as wonderful scientific compounds *omne ignotum pro magnifico.* A too credulous public will most likely be duped, and suffer consequent disappointment with toleration.

Unfortunately it must be admitted, a number of our druggists are heedless of their professional duty to discourage and restrain the sale and consumptisn of deceptive and fraudulent nostrums. A medicine is too often bought by the profession without previous investigation or examination regarding its character and nature; on the contrary, all appears satisfactory, *if it will sell.*

It should be considered the moral obligation of all conscientious pharmacists to coöperate in the endeavor to elevate the profession to its proper standard, by faithfully adhering to the duties and obligations the vocation demands.

The following, as stated in an address issued by the American Pharmaceutical Association in reference to the education of apprentices, speaks for itself; it says:

"When we investigate the causes of this state of things, it will be found to arise primarily in the want of a correct feeling of the dignity and the responsibility of the calling of the apothecary as a branch of the medical profession. The larger number of those who deal in drugs and medicines do it solely to make money; they aim at making the most out of the least outlay of capital or trouble; to *sell* medicine is their vocation; and he is the best clerk who can sell the *most*, under whatever circumstances it is affected. To avoid the necessity of gaining the requisite knowledge of practical pharmacy, it is no uncommon habit to buy the ordinary preparations ready made, except the simpler ones, and at the lowest price, and the business, thus shorn of its most interesting feature, the application of chemistry in the conversion of crude drugs into medicines, becomes a mere store keeping, where the drug clerk is kept putting up and selling parcels and bottles of medicines, the preparations of which, and the beautiful reactions often concerned in their manufacture, he is as completely a stranger to as though they did not exist. Is it any wonder, then, that,

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after one or two years' service, the apprentice should fancy that he had learned the business as a *seller* of drugs and chemicals, and becoming uneasy at the prospect of a four years' term, breaks the slender connection that binds him to his employer, and starts out as a fledged clerk ! In these days of manufacturing pharmacists, when most of the nicer preparations, from Dover's powder to fluid extracts, can be bought ready made, the temptation to purchase them is great, even to the qualified principal, who thus saves himself the trouble and care attending their manufacture; but he is apt to forget the injustice done to his proteges, who are thus deprived of the important practical knowledge only to be gained by becoming familiar with the manipulations they involve. Having abandoned to a large extent the making of these preparations, such apothecaries are ready but too often to accept the agency of the numerous quackeries that abound, to swell their sales, and from this are led into the origination of secret compounds, and become quacks themselves."

NEW TREATMENT FOR TAPE-WORM.

A. J. Schafhirt writes from Washington, D. C., to the Druggist's Circular in regard to the treatment for tape-worm, and after a number of experiments found the following to give entire satisfaction:

Treatment,—I made no preliminary provisions further than to forbid the patient from taking any breakfast the day I intended removing the worm, and giving him a large dose of Rochelle Salts the preceeding night. At 10 o'clock in the morning he had the following at one dose:—

Bark of Pomegranate Root	½	ounce.
Pumpkin Seed	½	"
Ethereal Extract of Male Fern	1	dram.
Powdered Ergot	½	"
Powdered Gum Arabic	2	"
Croton Oil	2	drops.

The pomegranate bark and pumpkin seeds were thoroughly bruised, and with the ergot, boiled in 8 ounces of water for 15 minutes, then strained through a coarse cloth. The croton oil was first rubbed up with the acacia and male fern, and then formed into an emulsion with the decoction. In each case the worm was expelled entire within two hours. No unpleasant effects followed.

MARINE GLUE.

The *Journal of Applied Chemistry*, gives the following, which is said to be both firm and waterproof: 1 lb. of caoutchouc, cut into small pieces by means of a wet knife, dissolved in 4 gallons of wood naptha. The solution of the gum should be aided by frequent stirring, and will usually occupy 10 or 12 days. When this is completed 2 pounds of shellac are melted in an iron ladle, and one pound of the solution stirred in, and the glue poured out to cool upon slabs.

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EDITORIAL.

NOTES ON THE ACTION OF DECOMPOSED SOLUTIONS OF CITRIC AND TARTARIC ACIDS AND THEIR SALTS.

It is a fact well known, that many of the vegetable acids and their salts, when in a dilute aqueous solution, undergo a spontaneous decomposition, due to the growth of microscopic fungi—what effect have these fungoid growths on the animal economy when taken into the system? This query has presented itself to us by the following circumstance: An eight-ounce aqueous solution of citrate of iron and quinia having been dispensed, was returned to us after a lapse of about three weeks, with the remark that there must be something wrong with (what was left of) the mixture, as each dose administered produced alarming symptoms of gastric and intestinal irritation, occasioning intense griping of the bowels with diarrhœa. The remnant of the mixture presented nothing unusual in appearance, excepting that of a slight turbidness. Not being able to explain the cause of this unusual action of the remedy, we prepared the mixture again, and requested the patient to inform us should these symptoms again occur. We at once subjected the returned portion of the mixture to a microscopical examination, which at once satisfied us that it was undergoing decomposition and fermentation. We have since experimented with aqueous solutions of Citrate of Iron, Citrate of Iron and Ammonia, Citrate of Iron and Potassa, Citrate of Iron and Strychnia, Citrate of Bismuth, Citrate of Potassa, also with similar salts of tartaric acid, and have found that they all undergo this spontaneous decomposition, and when taken into the stomach in this state, have produced at different times and on different individuals, the above mentioned symptom, only varying in the degree of severity. The patient for whom we prepared the mentioned prescription, informed us a few days after its repetition, that it had no unpleasant effects, and was in all respects like that dispensed at first. We have since been informed by the person, that the same symptoms appeared while taking the last of the mixture, but with less severity than in the former instance.

These observations lead us to believe that this class of remedies, when administered in an aqueous menstruum, are liable to produce deleterious results, and ought to be watched with care. Further experiments and observations may help to a more correct and technical understanding of the subject, and for this reason it may be referred to again.

EDITORIAL PASQUINADE.

The Tennessee *Pharmacal Gazette*, in its May issue, contains an editorial on GRANULAR CITRATE OF MAGNESIA, which from all appearances is the joint production of its twin-editors, "Condenser" and "Phunny-fellow." The first of these prodigious geniuses is in such a constant state of *condensation* that he rarely ever gets beyond the first paragraph of an English essay without distorting its signification. The second, "the Phunny-fellow," says such funny things, that he himself is unable to see the "point," and thereby gets the laugh on his

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readers. Gentlemen, take our advice, be *consistent* in what you say, and *careful* how you say it, as a *little* knowledge is said to be dangerous.

IODO-BROMIDE OF CALCIUM COMP.

The bottlers of this scientific (?) compound, having found its field of usefulness somewhat limited in its native country, extended their operations by introducing it to the people of the Eastern hemisphere, during the session of the International Exposition at the Austrian capitol.

The time and place were well chosen, and no doubt its projectors congratulated themselves on having at last given it the cosmopolitan notoriety it so richly deserves; as its miraculous virtues to relieve the suffering invalid of his money, and make it spring into the greedy coffers of its proprietors is marvelous. But unfortunately for the enterprise the old saw "the best laid plans of mice and men gang aft aglee," has again proven true. A stumbling block to its introduction not previously calculated upon, was met in the old "fogy" spirit of the Vienna apothecaries, who are not like their trans-atlantic brethren, up to the times in making money through a too credulous public. It is therefore with some feeling that we record, that one of these unbusiness like Austrian apothecaries allowed his scruples in this respect to carry him so far, that on obtaining possession of a bottle of this wonderful mixture, he placed it in the hands of Dr. Godeffroy, professor of analytical chemistry, at the laboratory of the Austrian Apothecaries' Society, who submitted the mixture to a chemical examination, with the following results, and which he published in the *Zeitschrift des Oesterreichischen Apotheker-Vereines:*

CONTENTS OF 100 PARTS OF THE FLUID.

Chlorine	16.668
Bromine	Trace
Iodine	Trace
Sulphuric Acid	0.104
Phosphoric Acid	Trace
Silicic Acid	0.912
Nitric Acid	Trace
Aluminium Oxide	6.476
Calcium Oxide	1.060
Magnesium Oxide	0.113
Manganesium Oxide	Trace
Iron Oxide	Trace
Potassium Oxide	Trace
Sodium Oxide	1.092
	26.425

With all due deference we ask the bottlers of this nostrum by whose wisdom was this marvelous compound concocted? The name of the originator deserves to go down to posterity as the greatest genius of the 19th century.

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What say those members of the medical profession who have not only prescribed this article, but have attached their names as a public endorsement of the medicinal virtues claimed by its proprietors? We ask, what are the medicinal properties of the *trace* of iodine and bromine or does the virtue reside in the word "comp.," which no doubt designates the chloride of sodium, alum, &c., contained in the concoction? We publish this analysis especially for the benefit of our medical colleagues, who have so highly recommended this heretofore secret remedy, so that they for the future may be able to concoct the combination, and thereby live up more closely to the ethics of the profession, for it is a burning shame that men who lay claim to a scientific education and a knowledge of remedies, should allow themselves to become the ever ready dupes of quacks.

Cannot some reform be inaugurated by which the physician will no longer be the abettor and *particeps criminis* in this reprehensible practice?

Ignorance is to a great extent the sole cause of the existing evil, and we call upon the medical press of this country, who claim to be the educators of the profession, to expose these frauds, which will prevent the duping of the profession, and we prophesy that the advocations of these impostors will soon cease.

THE LATE HENRY DEANE, F. L. S., OF LONDON.

Following closely on the death of Mr. T. N. R. Morson, comes that of his friend, Henry Deane, of Clapham. Very suddenly with heart disease he was taken away, during a journey to Hungary, whither he was going, accompanied by his daughter, to visit his son at Pesth. His demise occurred at Dover, on Saturday morning, April 4th. On the day previous he felt in excellent health, and on Saturday morning, while walking to the Ostend boat, gave a sudden exclamation and fell down, after which he did not speak. Mr. Deane was a man of marked individuality, revered and respected by all for his attainments and his labors in the advancement of pharmaceutical knowledge; and loved and cherished by all of his intimate acquaintance for his genial and sympathetic nature.

Very modest, and with a tendency to under-rate his own ability, he accomplished much in the way of research, and gave his experience for the benefit of others.

He was one of the founders of the British Pharmaceutical Conference, and its first president; also he was president of the Pharmacopœia Committee, whose labors resulted in the present British Pharmacopæia, which was designed to take the place of the three heretofore used in the kingdom.

Mr. Deane was in the 67th year of his age at the time of his death. His remains were interred in the churchyard at Cheriton, where his wife's relatives were buried.

On the Coloring of Hydrate of Chloral by Oil of Peppermint.—Dr. Carl Jehu in Geseke.—The author finds that a

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mixture of the above-named substances turns reddish at first, and gradually assumes a dark cherry-red color, which is readily taken up by ether, alcohol or chloroform. Boiling does not destroy the color. The addition of sulphuric acid intensifies it. Other oils, like that of citron, bergamot, juniper, anise, and others, fail, when similarly treated with hydrate of chlorål, to produce any coloration.

REVIEWS AND BOOK NOTICES.

A *Treatise on Pharmacy*, designed as a text-book for the student, and as a guide for the physician and pharmacist, containing the officinal and many unofficinal formulas, and numerous examples of extemporaneous prescriptions, by Edward Parrish, late professor of theory and practice of pharmacy in the Philadelphia College of Pharmacy, member of the Academy of Natural Sciences of Philadelphia, and of the American Pharmaceutical Association. Fourth edition, enlarged and thoroughly revised by Thos. S. Wiegand, graduate of the Philadelphia College of Pharmacy. With two hundred and eighty illustrations. Philadelphia: Henry C. Lea, 1874. 8vo., pp. 977. For sale by Jansen, McClurg & Co., Chicago.

This valuable work has been long considered an indispensable adjunct to the library of every American pharmacist. The late revision by Mr. Wiegand has been a very laborious work, and has added largely to its usefulness. The re-arrangement is very complete, and this has added much to the symmetry of the volume. The title of the previous editions, Parrish's *Practical* Pharmacy, has been changed, and the new title certainly expresses much better the character of the present edition. Perhaps the somewhat less practical character cf the present edition is more in accordance with the times, when every effort is being made to elevate the profession, and the scientific additions are demanded by the rising generation of pharmacists. Mr. Wiegand's practical experience has eminently fitted him for the work, and there is no reason to doubt that it will maintain the reputation it has so long justly held and deserved. With its description of and comments on shop furniture, fixtures and implements, and all appliances of the laboratory, it will be found of inestimable advantage to those starting in business, or fitting up a new store. Besides, a full outline of the different Pharmacopœias, weights, measures, &c., specific gravity, temperature, and the application of heat for the purposes of chemical and pharmaceutical purposes, are thoroughly explained. Inorganic and organic pharmaceutical chemistry, occupy their share of attention, and then the most practical and important part, galenical and extemporaneous pharmacy, which will be of great value to the student, in its variety of practical detail. The new nomenclature has been adopted, and all the formulas are in compliance with the changes in the last pharmacopœia. We heartily recommend the book for the use of students and pharmacists generally. In regard to the publisher's part in this work, we must say that the typographical appearance, binding and finish generally, is fully up to the standard as adopted by this publishing house.

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THE PHARMACIST.

VOL. VII. CHICAGO, JULY, 1874. No. 7.

THE USE AND ABUSE OF PHARMACAL TITLES.

BY HORATIO N. FRASER.

It might have been noticed, in a late number of a prominent pharmaceutical journal, that annexed to the name of the author of nearly every original article, was written the abbreviation of some degree, accredited to him by the editor, and although from the standing of the journal, and the well known character of its head, the title was undoubtedly earned, and honestly attained by each one, it caused a little surprise to some of its readers. The growing use of titles and some thoughts in regard to publishing their ownership, led to the writing of this article. A degree as properly defined, "is a grade or rank to which scholars are admitted in recognizement of their attainments, by a chartered university or college." From the way in which this reads, a wide construction can be put on the character, amount, or high quality of the attainments of scholars who have been admitted to, or others who have appropriated to themselves these evidences of rank in scholarship and ability. The manner in which these degrees are conferred, divides them into two classes: those given to a student after a thorough and complete examination as to his knowledge of those arts or sciences, in which he is made to show that he has become sufficiently proficient to lay honorable claim to the rank; and those bestowed on men of such well known and recognized ability, that the institution considers it an honor to place their names on its roll.

The honor conferred on the holder of the latter kind of degree, is commensurate with the standing of the institution bestowing it, the names of others holding the same degree, and with the number included in its list. The worth of the former depends on the standard of proficiency required of the graduate, the age of the college, the reputation of its professors, and the respect in which they are held by scientific men. The origin of degrees can be traced as far back as bible times, when some men were called doctors; but during the last century their use has been carried to such an extent that their history, as popularly considered, can be dated from its commencement.

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In medicine, a degree in former times was the mark of learning, and the diploma was considered the license to practice medicine and surgery. The degrees were protected by law in such a manner that the mere affix of the sign to a man's name, was sufficient to inspire confidence on the part of his patients. In Europe a certain restriction is yet laid on the use of these titles, although much of the stringency is taken off, lowering in proportion the standard of the profession. The possession of a degree in our country has never seemed of sufficient importance to become a matter of pride to the holder.

A degree in pharmacy is of quite recent origin in scientific history, but so grateful does the title seem that it is already wonderfully popular; indeed, in some instances, so easy has it become to have the necessary initials added to a pharmacist's name, that there are some in the profession who will never use the title, which they have earned by hard study and conscientious labor.

The degrees of medicine and pharmacy are entirely distinct. "Doctor of Medicine" should indicate a proficiency in the art of practicing medicine, a knowledge of anatomy, and their practical adaptation to the cure of disease and pain. The degree of "Graduate in Pharmacy," entitles the man who honestly wins it, to the confidence of physician and patient, in his ability to prepare and dispense medicine in its best, and, in a measure, its most elegant form. "Doctor of Pharmacy" is a title the meaning of which has not yet been clearly defined, either among pharmacists or colleges; whether it will be considered a more honorable degree than "graduate" has not been determined. The standing of those (men in the profession) who receive it, and the amount of good they accomplish, will be the only way of fixing its value. The question to decide is whether it is best now, or ever will be wise, for educated pharmacists to parade before the world the titles which they acquire. There are two points to consider—honor and profit. That profit should be considered with professional honor is apparent to every thinking man. For honor to a pharmacist would only give him a good name among the profession, while the accumulation of money with it, enlarges the amount of any man's dignity in the eyes of the world at large, and so adds indirectly to his means for elevating his profession.

If a druggist, a graduate of pharmacy, seeking to advertise his name, should add the letters "G. P." to his name on the sign board, his neighbor, who may have been a green grocer a year before, but who expects to make more money out of the drug business, comprehends the idea and immediately adopts the same course. He has the same right before the law as any one else. In a short time if this has the desired effect, every pill maker in the country does the same. People at first have a feeling of awe for the initials, gradually as they find out the real value of the men who adopt them, the awe wears away, and something akin to disgust takes its place.

Many physicians can be found to-day who can not tell what "G. P." means. Many pharmacists even, what "Phar. D." signifies. The mass of the people, from their novelty, are entirely ignorant of either of them.

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Now would it not be better, before publishing these titles, to educate the people to respect the profession of Pharmacy and its aims; to bring the fact before the minds of our legislators, that it is of some importance to protect the use of titles: to endeavor to make the trustees and faculties of our college ashamed of bestowing honor on undeserving men, before risking a course which may retard the healthy growth which pharmacy has of late years acquired.

There are men in this country who never attended a course of lectures in a school of pharmacy, as well fitted to practice it, as any who have graduated; let these with those of us who are entitled to degrees, so aim and work to raise the standard of pharmacy among the profession, that the best pharmacists of the next generation can not be divided into two classes—those who have and those who have not received a regular course of instruction and training, such as the best colleges afford, then the degree of graduate, master, or doctor of pharmacy; in its place, will be an honor.

This article is not designed to prevent the use of any earned title. Those who earn a degree have an indisputable right to use it as they please for the promotion of business interests; but the policy of using it now and risking its abuse with the attendant evils, should entitle the subject to some consideration.

PEPSIN IN OYSTERS.

BY HENRY W. BUCHMAN.

We, like many others of the pharmacal profession, were infected by the Pepsin excitement, brought about by the publication of Mr. Sheffer's process of separating the pepsin out of solution, by means of chloride of sodium. This process was generally accepted as the "ne plus ultra," and favorably recognized as such by pharmacal writers, until the appearance of Mr. Milleman's article, entitled "The Pepsin Muddle," published in the PHARMACIST, Vol. VI, page 144, in which he demonstrated first, that the product of Mr. Scheffer was not one of such purity as claimed by the author, and secondly that the price asked for the article was without any reason exhorbitant. Mr. Scheffer replied to the charges, which brought about a rejoinder from Mr. Milleman, but unfortunately for both writers, the wording of the controversy was undignified, and therefore not creditable to either of the gentlemen. Upon the heels of this controversy followed a digest by Mr. Rother, which was so prolific and extensive, that it did not alone exhaust the subject, but the patient and interest of the reader, who was doomed to bitter disappointment by the writer's summing up the whole subject, and announcing that the action of pepsin as a medicinal agent may be represented by "zero." Thus recorded this investigator, that "a little learning is a dangerous thing." We were happily however relieved from the antipathy in which the last writer had placed us, by the well known fact, that great emergencies bring forth great discoveries, and this was in some measure attempted by a sage

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philosopher, with the appendage of M. D. to his signature, who gravely announced through the medium of the medical press, that he had discovered the reason *why* raw oysters were so easily digested by the human stomach, "it being due to the fact that the oysters in this state contained an unusual amount of active pepsin." This startling announcement spread like wild fire, and no doubt many a bivalve was sacrificed on the altar of indigestion through the prediction of this hypothetical theorist.

We exclaimed, eureka! we now will immortalize our name by putting into practical use the hints thrown out by the "oyster" philosopher; we will make pepsin, which shall not only be acceptable to the invalid, but shall become a condiment to the table, of every household in the land. No sooner thought, than we proceeded to put it into execution; several dozen of fresh shell oysters were at once procured, and the same treated "lege artis" by Scheffer's process, when lo and behold the quantity of pepsin-like flocculent matter, was enormous, this was gathered and dried, but alas, when tested it had not the least effect upon coagulated albumen. Failing of practical use, the hints of a philosopher vanished, and with it the prospects of an easy acquired fortune.

But, what of it? there is a moral somewhere, and we have all been gainers in some respect; the publications of Mr. Sheffer, although but "hints," have resulted in a general knowledge of how to prepare pepsin. Mr. Milleman called attention to the large yield, and the exhorbitant prices charged for it, this has been modified so that it can be purchased at one-third of its former price. Mr. Rother has kindly looked up all the literature upon this subject, and placed it together, and the editor of the PHARMACIST, who had little consideration for the digestive power of his readers, presented the whole at one dose. Then came the "oyster" philosopher, who raised false hopes in the breast of an ambitious pharmacist, which were dissipated on applying the test of dissolving coagulated albumen, and left him with nothing but a product having a strong fishy odor, and resembling pepsin only in name, which he called "oysterin."

AN ESSAY ON THE INSECT ENEMIES OF DRUGS;

On the Best Means of protecting Sound Drugs from their Ravages and on the Means of Destroying Them when already in Drugs.

BY W. SAUNDERS, LONDON, ONTARIO, CANADA.

The insects which take up their abodes in, and consume the various substances kept in a drug store, are more numerous than one might at first suppose, some few of them occurring in abundance almost every year, while others are less frequent or rare; hence the opportunities for investigating their habits are not always alike favorable. It would be a difficult task, were one possessed of much more leisure than has fallen to my lot, to undertake to exhaust this apparently small field of research in a single season. I will, however, give

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you what I have been able to gather relating to two of our more common foes, and report, if permitted, on the rarer ones on future occasions as opportunities may present themselves.

In years past my own drug stock has suffered far more from destructive insects than it has during the current year. What to attribute this relative scarcity to I know not ; there are so many influences operating from time to time favorably or otherwise on insect life—some of which elude our observation entirely—that one is often quite at a loss to give a reason why an insect should be present in the greatest abundance one year and comparatively rare the next, the circumstances in each case being apparently similar. In any case this scarcity is not to be deplored, not even with an accepted query on the subject in hand, for the destructive powers of some of the species are truly formidable where their numbers are sufficiently great.

First, because with me most injurious, I would place what has been called by Dr. Fitch, State Entomologist of New York, "the Indian meal moth," *Tinea zeæ*, so named because it was first found in Indian meal, although by no means exclusively partial to it. The varied character of the appetite possessed by this creature during the larval or caterpillar stage of its existence, is something wonderful, very few substances seeming to be distasteful to it. It thrives equally well on *aconite root* and *taraxacum*, devours both with avidity, large roots being frequently so completely riddled by the numerous channels made through them that one can crush them between the finger and thumb. In the case of aconite it would be interesting to know whether the active and poisonous principle of the root is actually appropriated to the nourishment and sustenance of these worms as well as the starchy matter, or whether they possess the power of eliminating from their food noxious or injurious elements, and thus reject the alkaloid in the frass. This point I have not been able to determine. Rhubarb, either in root or powder, is esteemed a dainty morsel by this omnivorous creature, and is eaten as readily as pearl barley or burdock ; ergot is also a favorite article of diet, and I have reared it on currie powder, and have even found it feeding on Cayenne pepper. Surely with such an accommodating appetite this insect could scarcely ever die for want of suitable food.

When the material fed on is in large pieces, such as roots, this larva forms cylindrical or sometimes somewhat tortuous burrows or excavations through it, which are lined with a silky web, more or less of which protrudes about the orifices, where it is sometimes mixed with rejected fragments of the material and the excrement of the worm. Where the substance is in smaller pieces, such as ergot or pearl barley, or in case of a crushed root, the larva fastens together with silken threads a sufficient number of particles or pieces to enable it to provide for itself within a secure place of retreat.

When full grown this caterpillar measures about half an inch in length, and is nearly cylindrical in form. Its head is of a yellowish-brown color, with a polished horny appearance, and on the second segment, immediately behind the head, is a yellowish, horny-looking plate, which covers most of the upper part of the segment, and with

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a surface resembling that of the head, but of a paler hue. There is also a spot on the last segment of a similar character. The color of the body is dull whitish, with a few minute tubercles or smooth raised dots scattered over its surface, from each of which there arises a fine pale hair, scarcely visible without a magnifier. When disturbed it moves forward, or wriggles itself out backward with almost equal facility.

When fully mature the larva changes to a chrysalis within the chamber already excavated, where it reposes in a slight silky cocoon, attached to the side of the silk-lined chamber. The cocoon is made of very white silken fibres, and through this slight covering the pupa may be readily seen. The latter is about one-third of an inch long, of a pale dull yellowish color, ringed with darker brown lines, the large black eyes of the future moth showing through this partially transparent inclosure.

After remaining in this inactive condition for a sufficient length of time, varying with the period of the year and the temperature of the atmosphere, the winged moth bursts its bonds and prepares itself for flight. When fresh from the chrysalis, in common with other moths, its wings are but partially developed, are not more than one-fourth of their normal size, and quite incapable of sustaining in flight the weight of the body to which they are attached, but shortly, as soon as the newly escaped insect can place itself in a favorable position where the wings can hang downwards, a marvellous process of growth begins, when in a few moments the wings acquire their full dimensions. When we consider that this growth implies, not a mere extension of the membranous structure of the wing only, but the maturity and expansion of every scale upon the wing, the individuals of which appear but as the finest dust to the unaided eye, we may well wonder at the intricate system of circulation and nutrition by which such a marvellous change is so rapidly brought about.

When its wings are expanded this moth measures from one-half to six-tenths of an inch across, and may be readily recognized by its having the basal third of the wings dull white or cream-colored, while the outer portion is of a dark gray or blackish shade ; they have also a somewhat greasy-looking surface, and the scales which cover the wings are easily rubbed off when the moth is handled. There is usually a dull yellowish spot more or less defined a little beyond the middle of the wing, and sometimes the hind margin is slightly banded with the same color. The hind wings are nearly white, with a glossy surface, and margined with a long silky fringe. The body is dark-gray, with sometimes a little yellowish behind the head. Beneath, the fore wings are paler than above, with a satin-like lustre, and the hind wings are whitish.

There are some substances which this insect seems to avoid ; the following I have never known to be injured, although freely exposed where the insect was abundant : podophyllum, leptandra, menispermum canadense, gentian, gelseminum, hydrangea, geranium maculatum, sanguinaria, senega, and sarsaparilla. The cinchona barks also seem free. Cimicifuga in the unground state has escaped injury, but

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when crushed or coarsely ground it is soon taken possession of by this foe.

The meal moth, *Pyralis farinalis:* the larva of this insect very much resembles that last described, but the moth it produces is very different. The common name meal moth has been given to it on account of the injury it does to various farinaceous substances. *Tinea zeæ*, the insect last referred to, is, we believe, a native of this country, but *Pyralis farinalis* is an imported insect, brought over from Europe, where its destructive habits have long been known. I have found this insect very partial to the flaxseed in its unground state. While quite young the larva fastens together a number of the seeds into an irregular mass by means of glutinous silky threads, constructing in the centre a hollow chamber in which it lives, the diameter of which is enlarged as the larva grows. It does not confine itself to flaxseed, but attacks other substances as well, especially those of a farinaceous character, although it is not nearly so general a feeder as *zeæ*.

The caterpillar is of a dull whitish color, with the head, a plate on the upper part of the second segment, and a spot on the terminal segment pale reddish-brown, with a polished, horny-looking surface. This worm may also frequently be found in old flour barrels. Its history in the chrysalis state is very similar to that of the insect last described.

The perfect moth may frequently be seen on the walls and ceilings of rooms sitting with the hinder segments of its body curved over its back. When its wings are spread it measures about an inch across. The fore wings are light brown, with a large dark reddish-brown spot at the base, and another smaller one near the tip of the wing. Two wavy, whitish lines extend across the wings, the inner one bordering the dark patch at the base. The hind wings are paler, with wavy whitish lines, and clouded with spots and streaks of pale brown. The under side is much paler than the upper.

With regard to remedies, prevention is better than cure; hence by providing proper vessels in which to store the various substances the pharmacists keeps in stock with suitably fitting covers, much damage of this sort may be prevented; but where the insects have already gained foothold I know of no better method of destroying them than one suggested by Dr. Squibb, which is by the vapor of chloroform. A ready way of applying this is to pour a little of the liquid on a small piece of sponge, and place it in a shallow tin box or other suitable vessel, and close the lid of the package containing the infected drug tightly, so as to prevent free access of air. The vapor of the chloroform, in consequence of its density, falls on the material, and diffuses itself through the entire mass, carrying death wherever it goes. Where the moths are found to be abundant, they may be attracted and poisoned while in the winged state by exposing cloths wet with a mixture of molasses and strong solution of arsenic, to which a few drops of essence of pear has been added.—*Proceed. Am. Pharm. Assoc.*

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LATENT PEPSIN.*

BY GEO. W. C. PHILLIPS.

It is the generally received opinion among Pharmacists and scientific men that the principle, Pepsin, cannot exist where there is any alcohol. This theory has been most strongly advanced by Prof. Scheffer, of Louisville, whose experiments seem to point out the fact that all wines and elixirs of Pepsin, necessarily composed of alcohol, contain no Pepsin at all. He bases this idea on the fact that certain wines of Pepsin, when digested with coagulated albumen, at a temperature approximating that of the human stomach, have no solvent effect upon it. This view being urged upon medical men, has caused all these otherwise elegant mediums for administering Pepsin, to be received with distrust, or given up entirely. The results of experiments which I have recently made have caused me to believe that Pepsin does exist, in a marked degree, in all well-prepared wines and elixirs, and only needs proper treatment to bring out its full chemical and medicinal effects. My belief is that it exists in these wines and elixirs, and that by sufficient dilution and warmth, such as they would receive in the human stomach from its juices and heat, it regains its activity. I base this opinion upon the following experiments: One ounce of Boudault's Wine of Pepsin was digested with one hundred and twenty grains of coagulated albumen at a temperature of 98° F. for three hours. At the end of that time the albumen was examined and weighed. The only apparent effect this treatment had upon it was to color it brown, and harden it; a slight decrease in weight was probably owing to loss of water.

This experiment was repeated without alteration in the quantities; the only difference being in the addition of an equal volume of water to the wine of pepsin. At the expiration of three hours the albumen was again examined. It had decreased in weight thirty grains, and presented the characteristic appearance of albumen which has been acted upon by Pepsin; the sharp angles were gone, and in their place a granular surface was presented.

Another experiment with the same quantities, the water being increased to three ounces, showed a decrease in the albumen of fifty grains. A sample of the Wine of Pepsin used in these experiments was then examined to determine the amount of alcohol it contained. Horseley's process, given in the *Chemical News* of October 19, 1861, was employed, and it was found to contain eight per cent. of free alcohol.

The conclusion that I draw from these and other experiments is this: That while a carefully made Wine of Pepsin, not containing over ten per cent, of alcohol, may, and does contain Pepsin, that it exists in a latent state, and that when diluted with the juices of the stomach, at the normal temperature of that organ, it regains its activity, and will perform its digestive functions.—*Third Annual Report of the Alumni Assoc. of the College of Pharmacy of the city of New York.*

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* Read at the annual meeting of the Alumni Assoc. of the College of Pharmacy of the city of New York.

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ON PATENT MEDICINES—THEIR EVILS AND THE REMEDY.*

BY B. W. MURPHY, M. D.

The sanitary condition or interest of a country or nation is a matter of no less importance than its commercial; in fact the former not only underlies the latter, but is the basis of every industry and enterprise that mark a nation's greatness. There is no higher or more important duty for state or nation to discharge than those pertaining to sanitary or hygienic laws and regulations; and the remark of the Prime Minister of England is most befitting, that the fate of a nation will ultimately depend upon the health and strength of the people. And while there are many evils in our country to be corrected and overcome, evils as broad as our wide domain, fostering disease, and increasing our mortality reports, and rendering our progress in sanitary matters slow and unsatisfactory, I have selected the one perhaps the least suspected of harm as the subject of this short essay.

For the last seventy-six years Patent Medicines have engaged the attention of the American people more than any other people in the world, and their manufacture and consumption has become a serious evil. There are two parties engaged in this extensive traffic; the one make and sell, the other buy and consume them. The first combine capital, shrewdness and knavery, for the purpose of making money. But one question is asked, "Will it take?" or, "Can we sell it?" You are all too familiar with the manner of introducing Patent Medicines to be interested in any details that I might present. The numerous traveling agents that overrun our land, painting their advertisements on every house, fence and board; posting handbills on every corner and sending them thousands of miles through the Post-office; distributing them in families; publishing sworn certificates, purchased for a paltry sum, in pamphlet form, accompanied, perhaps, with the calendar for the year, (all of which is graciously given away); columns of advertisements in our daily and weekly newspapers, offering specific cures for any and every disease—are but so many means of educating the public mind into the use of these preparations, whose virtue depends on the secrecy of their composition.

The name of the consumer is legion, whose actions are based upon the law of habit and false education more than on necessity. Men, women and children, of all classes and conditions, are constantly using Patent Medicines; and the habit has besome so broad and universal in our country as dram-drinking, and the injurious effects but a trifle less.

What are the effects upon the system? Take, for example, one of the most popular, "Mrs. Winslow's Soothiug Syrup," which mother's give to their children by the wholesale until the child becomes narcotized or stupefied from the morphia it contains; and this is repeated upon the slightest disposition of the child to cry, until a habit is fixed and the child's nervous system is injured, its digestion impaired, its physical and mental development retarded and dwarfed. Have we

*Read before the Sacramento Society for Medical Improvement.

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not seen serious and sometimes fatal results from the use of "Vinegar Bitters," a compound the administration of which by a regular physician would justly expose him to suit for malpractice? And yet the principal in the manufacture of these bitters informed me that they sold over a milion dollars' worth in the year 1872, and expected to do still better in 1873. Look at the effects upon the system of that much used medicine, Ayer's Cherry Pectoral. It checks expectoration, leaving the bronchial tubes dry and inflamed, constipates the bowels, and with many establishes a habit or creates an appetite for the use of opium, whose continued use requires no comment at our hands.

What can be said of the various nostrums advertised for certain female diseases, whose real object is to secure abortion; and to evade the law and at the same time to be sure their real object will not be mistaken, they caution the ladies not to use them when "in the family way." These remarks on Patent Medicines and nostrums might be extended to thousands, but time and space forbid.

Patent Office Reports.—I wrote to the Commissioner of Patents, at Washington city, for information on the subject, and was informed that a copy of the Patent Medicine Records would cost about $250. This is mentioned to show how wide a range they have taken in our national archives.

But to the kindness of Dr. Thos. C. Smith, of Washington, I am indebted for the following Patent Office information:

The first patent granted in the United States, where the use of the medicine is indicated, was on the 3d of May, 1797, to Benjamin Duvall, of Virginia, for anti-bilious pills. The next was June 17th, 1801, to Jesse Wheaton, of Massachusetts, for a jaundice bitters. On the 9th of June, 1809, a patent was granted to Wm. Story, of Lebanon, Pennsylvania, for a medicine to cure hydrophobia. (What a pity it was a failure!) But the ingredients of these medicines are not given, which places them among nostrums. On the 24th of November, 1820, a patent was granted to Lorenzo Dow (suppossd to be the eccentric preacher Dow,) for a medicine the recipe of which is now on file in the Patent Office, as follows: "1st, Take 9 pounds of Epsom Salts, dissolve in 8 quarts of soft boiling water, to which add tincture of bloodroot, 4 ounces; 2d, Take 1 pound of salts of nitre, dissolve in boiling water, adding 8 ounces of pure sulphuric acid, making 4 quarts of the solution; when cool mix with No. 1, to be called: Dow's Family Medicine. Directions of this mixture: Take from half ounce to one ounce, in a half pint of cold water every two hours until it operates. Remarks: In costive habits a corrective, and in dysentery a speedy relief."

The recipe is given that you may compare it with prescriptions of the present day, and to let you see what has been protected by patent from our government. In December, 1836, the United States Patent Office, with all its records was destroyed by fire, which renders it difficult to give anything like a full list of patents granted for medicinal preparations. From 1848 until 1859 but few patents were issued. From 1860 to 1870, 339 were granted.

Trade Marks.—In 1870 the trade-mark law of Congress went

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into operation, with which, I presume, most of you are familiar. Since that time most of the nostrums are held by virtue of a trade-mark. The importance of the subject would not justify the time, labor and expense necesary to procure a list of the trade-marks from each State. Since October, 1864, over 200 trade-marks have been filed with the Secretary of State in California. In 1871-2, 89 trade-marks were filed in the District of Columbia for medicinal preparations. These trade-marks are distinctive labels, or some peculiar device to particularize the products of an individual or firm. There may be found on the revised catalogue of a single house in New York, (John F. Henry,) for the year 1872, 1,570 different kinds of Patent Medicines and nostrums.

There are 14,000 drug stores and 4,000 grocery stores engaged in selling Patent Medicines in the United States. The number of persons employed in the manufacture and sale of these medicines is 135,-000. Over ten-million dollars is paid annually for advertising alone, all of which must be paid by the unfortunate consumers. And the amount sold annually in the United States is about eighty million dollars'worth, being two dollars for each man, woman and child in our country.

In conversing with some of our leading druggists I learn that at least two-thirds of all their sales are Patent Medicines. The year that I was in the drug house of R. H. McDonald & Co., in this city, we sold about $91,000 worth of drugs, over two-thirds of which I am sure were Patent Medicines.

Science and Skill.—To what extent are medical science and skill represented in the manufacture of Patent Medicines and nostrums? It is a fact well known to all that they are only quacks and knaves who engage in it; persons who are equally ignorant of the laws of physiology, diagnosis and the therapeutical effects of drugs, a lack of which must leave any one to grope his way in the dark, the penalty to be paid upon the alter of suffering humanity.

Do the People need Legislative Protection?—We find in all the large cities, both in the United States and Europe, laws prohibiting the sale of impure articles of food, such as milk, meats, poultry, vegetables, etc. They also employ Inspectors of Markets, for the purpose of keeping the public from being imposed upon by dishonest and unprincipled persons who are engaged in the trade.

A bill has been prepared by a member of the State Board of Health, which is general in its nature, and, like the municipal laws, is well calculated, if it becomes a law, to protect the citizens in general from being imposed upon.

If the people are not capable of judging properly of those articles of food on which they have been raised, and had many years of experience, but require the protection of the law—we ask in the name of common sense and the right of a free people, how they can be expected to judge of medicines they know nothing about and have not had an opportunity of knowing, and are equally ignorant of the pathology of the disases to be treated?

Who is to Bring About the Reformation? There can be but

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one answer to this question. All eyes will naturally be directed toward the medical profession, which may justly be regarded as the sanitary guardian of the people.

The medical profession has become a well organized institution, with a National Medical Association, supported by 33 State Medical Societies, with a membership of 40,000 regular graduates. Each State Society has its various local societies, and by the friendly discussions, the free interchange of thought and the reciprocal feelings that exist amongst us, the profession has become a unit in all scientific and sanitary measures calculated to benefit society. And we are proud to say that when a discovery is made in any of the various branches of medical science, calculated to benefit the profession and to aid and assist in the good work in which we are engaged, they bring it a free gift offering, and lay it on the altar of suffering humanity.

Free from selfishness, and moved by the kindest and purest of motives, we find them ever ready to make as great or greater sacrifices for the benefit of science and the good of society as any other class of citizens in the world.

This is well attested by history, and particularly illustrated in the late epidemics in the South, where our brethren in the profession died like martyrs at their posts, trying to check the onward spread of the fearful destroyer, and to relieve the sufferings of their fellow-men.

I feel that we are not called upon to peril our lives or our reputations, but to come boldly to the front, as good soldiers, ever ready with a zeal and energy worthy of our high calling, and the importance of the great evil to be overcome, and never cease our united efforts until the forty millions who are now slaves from habit and a *false* education, shall be freed from the *curse* of Patent Medicines.

How can the Work be Best Accomplished? We would here remark that the only hope is in a wise and judicious system of legislation, which must be as broad and general in its nature as the evil to be corrected, and as all the Patent Medicines are held under the law of Congress, so will the evil have to be corrected by a law of Congress, and not by State legislation. The task, is no easy one. We have capital by the millions to contend with, besides the various local interests and vocations of all engaged in it, and worse than all, a false system of education to be overcome, which is so strongly supported by a law of habit, as to render the problem still more difficult of solution.

Our hope of success lies in a concert of action by the medical profession throughout the United States, to secure the enactment of a law requiring the *formula* or *recipe*, printed in plain English, to accompany each and every package of medicine offered for sale in the United States, whether held by virtue of a trade-mark or a patent. Any person or persons who either manufacture or sell such medicines, or cause the same to be done, who fail to comply with the law, or who shall knowingly or willfully print or cause to be printed a *false* formula or recipe to accompany such medicine, with a view of deceiving the public, shall be deemed guilty of misdemeanor, and liable to

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be punished by fine and imprisonment, and to have all the medicines confiscated.

To accomplish the proposed legislation the National Medical Association should secure the co-operation of all the State Societies in getting petitions to Congress on the subject, which petitions should not only contain the names of all the physicians in the United States, but also the names of all the State officers in each State. The petitions should all be sent up at the same time, and be presented by a committee appointed by the National Medical Association.

The object of the law is not to wipe from existence everything in the shape of Patent Medicines, but to correct the evil if possible, and protect the innocent and unsuspecting from being imposed upon.

The medical profession in America to-day, is more or less entangled, encumbered and retarded by this web-work of Patent Medicines, which we have to come in contact with in nearly every house we enter. Reforms in all ages have had their heroes and martyrs; for political liberty thousands have freely given their lives, that some great principle of freedom might have a practical development. Who are to be the champions and heroes in this reformation? Our opponents will be numerous and strong; they have the great currents of public opinion to bear them onward. They will have thousands of subsidized newspapers to sustain them. Yet we should take courage, for we have a principle to defend, as high and pure as ever moved the human heart. We trust there are great and qualified men in our profession who will move in this noble work with untiring zeal and energy, and never cease until the light of medicinal science shall penetrate the gloom and darkness that envelope the people, and until the popular conception of the use of Patent Medicines and nostrums shall vanish, and the multitudes rejoice in their liberation, and in the possesion of a higher and better class of agents to promote their physical and mental development.—*Pacific Medical and Surgical Jonrnal.*

BUCHU LEAVES.*

BY PROFESSOR F. A. FLUECKIGER.

The leaves of species of *Barosma* growing at the Cape, known under the name of buchu leaves, are but little used, and have not yet been the objects of a chemical or microscopical investigation, although worthy in a high degree of both. The smell of buchu leaves appears to the author not alone to depend upon the essential oil, for in this respect it is more suggestive of peppermint. By long exposure to the cold of winter he has obtained from the oil a well crystallized camphor which melts at 85° C. and commences to sublime at 110° C. It dissolves in bisulphide of carbon, from which it may be obtained in fine needles that might well be taken for peppermint stearoptine. The elementary analysis gave, carbon 74·07, and hydrogen 9 to 10, but it was not sufficiently satisfactory to construct a formula from.

* Abstract of an article in the *Schweizerische Wochenschrift fur Pharmacie,* Dec. 19, 1873, published in the *Pharm. Jour. and Trans.*

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The oil poured off from the camphor of *Barosma detulina* does not boil under 200° C., and afte· being rectified over soda, answers to the formula $C_{10}H_{18}O$. The crude oil turns the plane of polarization to the left.

The aqueous infusion of the leaves contains some mucilage, and a body which belongs probably to the quercitrin or rutin class; the extract is not altered by ferrous salts; it is coloured greenish brown by ferric chloride, and gives with acetate of copper a yellow precipitate which is soluble in potash. Further experiments are required to show what this body is.

In an anatomical point of view buchu leaves appear at first sight remarkable by the large spherical oil vessels, which however do not claim any especial interest. If a transverse section of a *Barosma betulina* leaf be made, three layers can be discerned in the inner tissue. The thickest, occupying the middle of the leaf, is colored green by chlorophyll, which is much less the case with the considerably smaller layer occupying the space between the chlorophyll layer and the under side of the leaf. A third layer, in a section prepared in alcohol or oil, is scarcely perceptible. It appears as a small uncoloured zone directly under the epidermis of the upper side of the leaf, in which, differing from the under side, no oil vessels appear. There may be seen also the filbrovascular tissue, the raphides, the cuticle and the epidermis constituting the skin tissue of the leaf.

If a section of *Barosma* leaf be placed in glycerine the epidermis of the upper side is raised by a mechanical action which resembles that which takes place when the epidermis of linseed, white mustard seed, quince seed, etc., is saturated with water. The delicate walls of the colourless cells in the last mentioned layer swell up, and protruding perpendicularly to the surface of the leaf, let a thick slime run out, in which the cell walls gradually disappear. At first there seems in this cellular slime an appearance of delicate stratification as in many other similar cases. The mucilage is not coloured by iodine, consequently it may be considered to approach nearer to cellulose. Under the influence of glycerine the mucilaginous laper of the leaves of *Barosma betulina* assumes the development described quite gradually; but it is produced much more quickly when the leaves are placed under water. In the latter case this layer occupies fully half the breadth of the section.

The leaves of the *Barosma crenulata* and *B. serratifolia* are, as is known, much thinner, being about half as thick as those of *B. betulina*. When these thinner leaves are placed in alcohol the mucilaginous layer remains scarcely perceptible, but in water it swells equally with that of the other kind. The breadth of this layer is then proportionately much more considerable in the thinner species, taking up two-thirds the breadth of the section of a leaf.

Whilst we are accustomed to find the epidermis to be the seat of the mucilaginous formation in the seeds, and to meet with special mucilage cells in the cortex, in the buchu leaf this function belongs to a row of cells (collenchyma) in the interior, without the epidermis having any share in it, if we, at least, leave out of consideration the

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fact that here and there isolated prolongations of cells extend from the epidermis into the mucilaginous layer.

The author does not know whether other leaves present similar conditions ; in *Althœa* leaves, after quite a cursory examination, this appeared to him to be no more the case than in those of *Sesamum indicum*, which are tolerably mucilaginous. *Empleurum serrulatum*, on the other hand, resembles *Barosma.*

ESTIMATION OF THE ALKALOIDS.

M. Mayer* makes use of the hydrargyro-iodide of potassium to determine the amount of all vegeto-alkalies, whether pure or contained in pharmaceutical preparations. This reagent, as is well known, is a solution of mercuric chloride in excess of potassium iodide. For volumetric analysis, 13.546 grammes of the former salt, and 49.8 grammes of the latter, dissolved in a litre of water form a decinormal solution. Of this solution one cubic centimetre will precipitate.

.026	gramme of	aconitine	.020	gramme of	morphine.
.014	"	atropine	.004	"	chinicine.
.021	"	narcotine	.004	"	nicotine.
.016	"	strychnine	.010	"	quinine.
.023	"	brucine	.010	"	cinchonine.
.026	"	veratrine	.010	"	quinidine.

The mercurial solution should be added to that containing the alkaloid. The precipitates are formed in either acid, neutral, or slightly alkaline solutions ; and with the exception of alcohol and acetic acid, the reaction is not hindered by the ordinary constituents of pharmaceutical preparations. This process will indicate 1-10,000 part of the alkaloid, especially if the solution be subjected to dialysis, and is of course applicable to cases where a single alkaloid is present.

* *Journ. de Pharm. d'auvers*, p. 49, Feb. 1874.

PTYALIN.

Mr. Abert P. Brown, in the *American Journal of Pharmacy*, gives the results of some experiments in the preparation and action of ptyalin. The process employed was the same as for pepsin and pancreatine. The parotid gland of the pig was used, and the result was quite satisfactory. The parotid gland is the *salivary gland* situated nearest the ear. Ptyalin is found in the saliva, and like diastase, acts on starch rapidly converting it into glucose. This was demonstrated by experiment, as well as the fact that it dissolves albumen to some extent, though being much inferior to pepsin. It is recommended to be used in combination with pepsin and pancreatine and not in their stead.

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ON ORANGE-COLORED GLASS AS A MEANS OF PROTECTING VOLATILE OILS.

BY WILLIAM PROCTER, JR.

Query 18.—What is the actual value of orange-colored window glass as a means of preventing the chemical action of light on volatile oils ?

This query appears to have been suggested by the use made of such glass by photographers, to prevent the decomposition of chloride and iodide of silver in the working of their processes, so as to avoid the need of being in a dark-room. It is still a mooted point how far such glass will prevent the passage of actinic rays, and philosophers even disagree as to where in the spectrum, or beyond it, lies the greatest chemical influence. The question as presented above is, however, a practical one, intended to decide whether oils in colorless glass bottles, if kept in cases glazed with orange-colored glass, will be as exempt from actinic action as those placed in a dark closet, and if so, whether orange-colored glass is the proper material to construct glassware for this and other purposes where actinic action is to be avoided ? About six months ago a closet was prepared with glass doors of orange color, and the regular set of dispensing bottles of half pint capacity arranged in it on shelves, to the number of about thirty distinct oils. The bottles had previously been kept on open shelving ; and before being placed in the closet each bottle was emptied, thoroughly cleansed of resinous and other deposit, washed with alcohol and dried, when the clear oils were returned. At the same time two small vials were filled with oil of peppermint and two with oil of lemon, both oils being of the best quality. One of each was kept in the oil-closet and the other set in a closet near the window of colorless glass. The writer was too much occupied with other matters to make corresponding experiments in and out of the closet with all the oils, and hence no result was arrived at of a character satisfactory in resolving the query *pro* or *con*. None of the oils in the closet exhibited deposit of resin, crystalline matter, or other deposit worthy of note. So far as could be remembered, their color was but little changed, but, as in all respects except the light, they were subjected to the previous conditions surrounding them, being frequently opened for dispensing, it will be interesting to ascertain if their modified condition as regards light really retards atmospheric oxidation. The oil of peppermint kept in the closet appeared of the same color (nearly colorless) as that kept in the light, but its odor was less marked to a perceptible degree. The oil of lemon, in both conditions, had a flocculent sediment, but was otherwise so nearly alike as to appear the same when applied to the nose, yet the oil in the vial exposed to light was evidently lighter in color by bleaching.

A vial of (expressed) oil of orange-peel, after two months retention in the closet, was found to have undergone the usual deterioration.

The writer, in offering these remarks, does not consider them as a reply to the query, but as showing that he has not intended to neglect his duty in the matter. If the Association will continue the subject, he will carry on the observations another year and report.—*Proceed. Am. Pharm. Assoc.*

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FOWLER'S SOLUTION AND MAGENDIE'S SOLUTION.*

BY JOHN VANDERBEUGLE.

The query I accepted at our last meeting to be reported this evening I have fully investigated, and trust that my answer will meet the approval of the members of this Association.

The query was: "When Fowler's Solution is mixed with Magendie's Solution, a precipitate is formed. What is the nature of the precipitate? Does it always occur? Can it be prevented?"

The following are my investigations. I commenced by taking half an ounce of Magendie's Solution, and adding to it slowly, drop by drop, some Fowler's Solution, and agitating occasionally, until I obtained a good precipitate. This I filtered out, and to the filtrate added some more of the arsenical liquid, obtaining more precipitate. After repeating the above process a third time, the further addition of Fowler's Solution caused no more precipitate. This proved that the reaction was complete. Having dried the precipitate on a sand bath, I took a portion of it, dissolved it in distilled water, in which it was but slightly soluble, until I acidulated the solution with a little C. P. Hydrochloric Acid. I then used Reinsch's test for arsenic, without obtaining any result on the bright copper foil. To another part of the solution of the above precipitate I added some ammonio-sulphate of copper, and, as before, obtained no precipitate. These tests proved that arsenic was not present in any form whatever. To another portion of the precipitate I added a drop or two of C. P. Nitric Acid, and obtained a beautiful red color which is very characteristic, and proved that the precipitate was Morphia. I then proceeded to test the Morphia to see if it was pure, by adding a few drops of solution of chloride of Barium to a solution of the precipitate, without obtaining any change; this proved that the precipitated Morphia was free from sulphuric acid. These experiments showed that the precipitate was pure Morphia.

I now commenced to investigate the filtrate, first, by acidulating it with a little C. P. Hydrochloric Acid, applying heat, and then adding a piece of bright copper foil. The result was that decomposition took place, and the copper presented a steel gray coating on its surface. Having dried the copper, and heating a glass tube in which it was placed, beautiful crystals of arsenious acid made their appearance at the top of the tube. The above proved that arsenic was present in the filtrate.

I next proceeded to investigate in what form the arsenic was combined.

The solution of sulphate of copper produced a green precipitate in the filtrate, which proved that arsenic was present in the form of an alkaline arsenite. (The same solution of copper will produce a bluish white precipitate in solution where arsenic is present in the form of an arseniate.) This experiment proved that the filtrate was simply a solution of arsenite of potassa.

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* Read at the annual meeting of the Alumni Assoc. of the College of Pharmacy of the city of New York.

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All the reagents used in these experiments were previously tested and found to be perfectly pure.

"Does it always occur?"

It always occurs when combined together, owing to the arsenical solution being slightly alkaline.

"Can it be prevented?"

By acidulating the mixture with sulphuric acid—it requires but a few drops—the precipitation is prevented.—*Third Annual Report of the Alumni Assoc. of the College of Pharmacy of the city of New York.*

MISTURA ASSAFŒTIDÆ.

David Ackerman, Jr., in an inaugural essay published in the *Am. Journal of Pharmacy*, gives a formula for a concentrated assafœtida mixture, which he says has been found to retain all the characteristics of the fresh mixture:

℞ Assafœtidæ, (finest tears),........................ grs. 240.
Sacchari albi,.......................................grs. 90.
Acidi acetici diluti,..................................f. ℥ i.
Aquæ fluv.. ℥ iii.

The assafœitda after having been rubbed uniformly fine, is mixed with the sugar, and the two well rubbed together. Sufficient water is added to bring it to a paste, and the remainder of the water added in successive portions, until the soluble matter was all taken up, each portion being carefully decanted. To this is added the diluted acetic acid, the whole well shaken together and kept protected from the action of the light.

The author believes that this concentrated mixture may be kept an indefinite time, and by diluting with three times its bulk of water, will readily yield a mixture equal in quality with the officinal.

SAGE'S CATARRH REMEDY.

The *American Journal of Pharmacy* for June, has condensed from an inaugural essay, by Adrian Bowens, the result of an examination of the above named nostrum, which is herewith given for the information of our readers. After detailing his mode of procedure, and the conclusions derived therefrom, he says: "A number of experiments were now made, by which it was found that a mixture in the following proportions very closely resembled Dr. Sage's Catarrh Remedy:

℞ Hydrastis canadensis.................................gr. v.
Indigo,..gr. ss.
Camphorae, pulv.,................................
Acidi carbolici,....................................āā gr. ii.
Sodii chloridi,..gr. l.

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Powder the camphor by means of a drop of alcohol, and mix with the salt previously reduced to a moderately fine powder; rub the indigo and carbolic acid together, mix with the salt and camphor, and lastly add the the powdered hydrastis, and mix intimately without much pressure in a mortar.

The above manipulations I found necessary to follow in order to obtain the powder in the same degree of fineness as the commercial article."

ON THE CONSTITUENTS OF THE ROOT OF FRASERA WALTERI.

BY GEORGE W. KENNEDY, OF POTTSVILLE.

American Colombo, the root of Frasera Walteri, belonging to the natural order Gentianaceæ, is an elegant indigenous plant, and the only one of its genus. It flourishes abundantly in the United States, especially in Arkansas and Missouri. Its period of flowering is from May to July; but the stems and flowers are produced only in the third year, the radical leaves being the part of the plant previously appearing above ground; from this form of growth, it is inferred that the root should be collected in the fall of the second, or spring of the third year. The question has occasionally been asked: Does American colombo, or, as it is sometimes called, American gentian, contain any berberina? This question might readily be answered, it does not, inasmuch as berberina has been found but in a limited number of natural orders, such as Berberidaceæ Menispermaceæ, Xanthoxylaceæ, and Ranunculaceæ, and yet there are few of the known alkaloids so widely diffused as this one appears to be in the vegetable kingdom, and judging from the yellowish color of the root and the bitterness combined, both characteristic and essential of the presence of berberina, we might suppose that it contains berberina.

A query was presented for acceptance, at the last meeting of the American Pharmaceutical Association, held at Cleveland, Ohio: "Does Frasera Walteri contain Berberina?" and was accepted for investigation. I accepted it, and so informed Professor Procter; but before I had signed my name to the same some one else had accepted it; so I came to the conclusion to write an independent essay on the above, with the following results:

Treatment for Berberina.—The coarsely powdered root was exhausted by repeated decoctions with boiling water, and the mixed liquids, after filtration, were evaporated to the consistence of a soft extract; this was digested several times with stronger alcohol until completely exhausted. One-fourth of its bulk of water was added to the tincture, and five-sixths of the alcohol distilled off; to the residue, while still hot, sulphuric acid was added in excess, and the liquid allowed to cool, no crystalline deposit being formed, thus proving the absence of berberina. Had berberina been present, crystals of sulphate of berberina would have been perceptible.

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Not being satisfied with the above examination, I made a second investigation, and with the same result as above, and feeling confident that it resembled either colombo or gentian in its medicinal constituents, I then proceeded to make an examination of it for gentisic acid, and gentiopicrin, both principles being found in the root of Gentiana lutea; the first being the acid, and the latter the bitter principle of the root.

As American colombo and gentian both belong to the same natural order, "Gentianaceæ-" and after failing to find berberina, I went to work in strong faith that I would surely find the medicinal constituents of gentian in the root of Frasera Walteri.

Treatment for Gentiopicrin and Gentisic Acid.—The root was coarsely powdered and percolated with alcohol, until exhausted; part of the alcohol was distilled off, and evaporated to the consistence of a soft extract; this was treated with water, and the aqueous solution twice with animal charcoal, which absorbed all the bitterness; extracted the bitterness from the charcoal with alcohol; evaporated the tincture; treated the residue in solution with oxide of lead, to separate the precipitable matter; removed the lead by sulphuretted hydrogen; evaporated to the consistence of syrup, and agitated the residue with ether, which precipitated the bitter principle; this was of a crystalline structure, bitter, soluble in alcohol and water, and insoluble in ether, neutral to test-paper, and not precipitated by tannic acid; this principle is called gentiopicrin, but, as has been suggested, should be called gentianin.

Gentisic acid was obtained also from the above extract, after being exhausted with water in search of the gentiopicrin, by treating with ether, filtering the ethereal solution, and allowing it to evaporate spontaneously. It is in needle-shaped crystals, pale yellow, insoluble in water and soluble in alcohol and ether, and turns litmus-paper red.

From the above, it will be seen that Frasera Walteri contains the same active constituents as gentian, and instead of being called American colombo, should be called American gentian, which I think would be the proper name.—*Proceed. Am. Pharm. Assoc.*

ESTIMATION OF TANNIN.

M. Dumas has invented an apparatus, by which the quantity of tannin in any given substance, can be estimated with great ease and rapidity. It consists of a glass tube, containing an alkaline solution and atmospheric air. The substance to be examined is introduced into the tube ; the two ends of the latter are closed by means of stop-cocks, and the tube is well shaken. The tannin combines with the oxygen of the air to form a salt with the alkali, and a vacuum takes place in the tube. One of the stop-cocks is then to be opened in some liquid, and in noting the quantities of the latter which is drawn into the tube, we can calculate the amount of oxygen which has been absorbed, and consequently, the quantity of tannin the substance examined contained. In this way it will be found that the pods of the acacia contain 40 per cent. of tannin ; chestnuts, 60 per cent.; oak bark, 76 per cent., and the yellow catechu, 77 per cent.

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TESTING FRENCH RED WINES FOR ARTIFICIAL COLORING MATTER.

"The red wines of France are distinguished by a red color, which in thin layers looks brown. When diluted with 50 parts of water the color is scarcely perceptible, while artificially-colored wines, even when thus diluted, still have quite an intense color, which is bluish-red. In a series of comparative experiments with reagents I diluted the wine with 20 parts of water, and obtained the following results:

Reagent.	*Genuine Wine.*	*Colored Wine.*
Acetate of lead solution, 1 to 10	Color disappeared, liquid muddy and dirty. On warming, little silver gray flakes with reddish tinge.	Large, cheesy flakes of dark purple color; on warming, more appeared
Sulphate of copper solution, 1 to 10.	Color disappeared almost entirely, without any cloudy appearance.	Purple color, slightly cloudy.
Baryta water, 1 to 10.	Lost color almost wholly; slightly turbid.	Purple to blue green, and turbid.

"In order to make the tests quickly and conveniently, I saturated filter paper with the three regeants and dried it. I then placed a single drop of the wine on the paper, and the result was surprisingly distinct and favorable. Genuine wine left the paper almost colorless, while the artificial made violet or blue spots. I will also add that the lead paper worked even when old and decomposed. The most important reaction was that with baryta water."

Dr. Jacobsen, the editor of the *Industrie Blatter*—from which we translate the above article by Eugen Dieterich—adds the remark that the amount of natural coloring matter in red wine varies with the season, the soil, &c., and hence Dieterich's test by dilution is of little value. He also states that wine growers themselves sometimes add coloring matter, and thus we can have both natural and artificial coloring in the same wine.

Le Temps gives another test, that of dropping a piece of caustic potash into a small quantity of the wine. If no deposit is formed, and the wine assumes a greenish tint, it has not been artificially colored. If, however, a violet deposit appears, elder or mulberries have been used. If the deposit be red, the adulteration is sugar beet; if violet red, campeachy wood; if violet blue, privet berries; if clear blue, coloring matter from sunflowers.—*Jour. of Applied Chemistry.*

A NEW ADULTERATION OF PORT WINE.

BY E. B. SHUTTLEWORTH.

Having recently had occasion to test a number of samples of port

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wine, I principally directed my attention to the detection of foreign coloring matter as affording the best evidence of falsification. On applying the test recommended by Lapeyrere,* five out of the fourteen samples examined gave colorations differing from the remaining nine. This test appears to be of some value, but I have no doubt that considerable experience is required before a definite and satisfactory conclusion can be arrived at. Filtering paper is saturated with a solution of acetate of copper, dried, and dipped in the suspected wine. If genuine, a greyish rose-red color is produced. Logwood is said to give a distinct sky-blue, while other coloring matters give modifications of the original natural tint.

On examining by the spectroscope, the nine samples before alluded to, the spectra produced showed no special characteristics, and this would go to confirm the statements of Sorby† and Phipson‡ who found that the coloring matter of the grape gave no absorption bands, but only a general darkening of the spectrum. The five remaining samples of wine gave decidedly different spectra, and one of them so peculiar that I was led to suspect the presence of fuchsine.

A further examination by other tests rendered this fact unmistakeably evident, and I have since ascertained that a mixture of magenta and a blue coloring matter known to the trade as azaline, are largely employed for the purpose of coloring cheap made-up wines. These colors are put up and sold by the dealers in wine and spirit doctoring materials, and are sold at exorbitant prices.

In order to detect the adulteration, I have found the following method to be satisfactory, and very easy of application. To a portion of the suspected wine, placed in a test tube, add an equal volume of fusel oil ; agitate well and allow the mixture to separate, when, if magenta be present, the supernatant layer will be more or less tinctured of a characteristic or pink or purple color. Genuine port, when so treated, does not impart to fusel oil any of its color, so that the slightest coloration may be taken as certain evidence of adulteration. If amylic alcohol be not at hand, ether may be substituted, but does not answer nearly so well.

Considering the dark color which factitious port must be made to assume, and the large quantity of such wine that is liable to be taken at one sitting, it is evident that the presence of these poisonous coloring matters might produce serious, if not fatal results.

BALSAM OF TOLU.

The most important writers on Materia Medica, of continental Europe, are at variance in their statements of the composition of Balsam of Tolu. Guibours, Scharling, Riche, Giaardin, and Lithé and Robin say that it contains benzoic acid, in addition to cinnamic; whilst Souberian, (following Kopp,) and Pelonge and Frenny affirm

* Jour. de Pharm. et de Chimie.

† Jour. of Microscopical Science, Vol. ix, p. 338.

‡ Jour. of Chem. Soc.; Feb. 1870.

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that cinnamic acid alone is present. M. T. Carles* has recently shown by a very simple experiment, that the latter statement is the correct one. Having had occasion to digest both the hard and soft kinds of Balsam of Tolu separately, in hot water, he succeeded in verifying the identity and purity of the two products by taking their equivalents, by means of a titrated alkaline solution, according to the ordinary method.

The great difference in the atomic weights of the two acids, (benzoic, 123, cinnamic, 148,) permitted this to be done with ease. He found the equivalent of the acid obtained from hard balsam to be 148.85, and from soft balsam, 148.4, leaving no doubt that the free acid of Balsam Tolu, whether hard or soft, is cinnamic acid solely.

TRANSACTIONS OF PHARMACAL COLLEGES AND SOCIETIES.

ST. CLAIR PHARMACEUTICAL ASSOCIATION OF SOUTHERN ILLINOIS.

Regular Quarterly Meeting, June 9th, 1874.

The Secretary informed the Association that a donation has been made by the Executive Committee of the Am. Phar. Ass'n, consisting of the proceedings of said association since its organization, that he has returned the thanks of the association. On motion of Mr. Streit it was then resolved to represent the association at the next meeting of the Am. Phar. Ass'n with four delegates, to be appointed by the chair.

The following gentlemen were then duly appointed delegates: Messrs. Wm. Feickert, Wm. Kempff, Jr., Chas. Muehlheims and A. G. F. Streit.

A. G. F. STREIT, Secretary.

FOURTH ANNUAL MEETING OF THE MISSISSIPPI STATE PHARMACEUTICAL ASSOCIATION.

COLUMBUS, Miss., April 8th, 1874.

The Mississippi State Pharmaceutical Association met in Convention at the city of Columbus—it being the Fourth Annual Session, President Hampden Osborne in the Chair; M. F. Ash, Treasurer; P. H. Keefe, Recording Secretary.

President H. Osborne delivered his Annual Address, as follows:

To the Members of the Mississippi State Pharmaceutical Association:

GENTLEMEN—On this, the Fourth Anniversary of our Association, I congratulate you upon the progress of our effort—and, notwithstanding the general financial depression, which naturally would lessen the enthusiasm and prevent the attendance of our members—we see encouraging indications of life and determination.

At our first meeting—held in the city of Jackson, five members were present—but they, nothing daunted by the lethargy of their brethren in the State, proceeded to organize and set the machinery in motion. Those gentlemen were:

* *Jour de Pharm et de Chemie*, Feb., '74, p. 112.

Matt. F. Ash, John T. Buck, W. P. Creecy, P. H. Keefe and H. Osborne. We are indebted to them for a comprehensive and impressive address to the Druggists throughout the State, and for our Constitution and By-Laws—a concise and perfect instrument.

Our roll now shows about forty members—representing most of our principal towns—and we may believe that, they acting as missionaries in their respective sections will greatly insure the membership and general interest during the ensuing year. That the interests of Pharmaceutical education, the isolation of our profession on an independent respect commanding basis, and the moral enforcement of a standard of purity and excellence, which will, in a great measure, purge from its ranks the ignorant and unworthy—have not kept pace even with the *shadowy approximation* in the Eastern and Middle States, is not surprising, when we remember that our country is *young;* and around every industry and profession are collected elements somewhat heterogenous. The young life of a community is not *creative*—but evinces a spirit of adventure and speculation unfavorable to patient research and dilligent study, which are indispensable to the attainment of professional dignity.

At our last meeting, a Committee on Legislation was appointed. The gentlemen composing it have faithfully discharged their duty and can report progress with hopes of final success. Public sentiment at present being hyper sensative in its regard of the rights of individuals—this *bill* is exempt from any feature which can be styled *compulsory;* and if it becomes a law, will be a stimulus to the well-disposed Pharmacist. Governmental recognition and the attention of the community, directed so generally to the subject, will also produce good results.

Your Constitution requires me in this connection to suggest means looking to the good of the Association; but believing that the progress of our meeting will bring to light the more mature ideas of my seniors before me, I will refer only to the system of apprenticeship in our shops. In no section of the civilized world, I venture to say, are apprentices permitted to take part in the most responsible duties, with such superficial preparation, as in the Southern part of our Republic —such inadequacy is manifestly an element of weakness. We *know* our duty but do it not, and as the apostatic injunction is to take heed concerning the things we have seen and heard. You will pardon me if I read to you a short extract from addresses on the subject by my old friend and preceptor, Prof. Chas. F. Chandler, of the School of Mines, New York:

"In Germany the education necessary to admit a young man to the position of apothecary, extends over a long period of years, with periodical examinations.

1. The young pharmacist must reach the second class in the Classical School, the "Gymnasium." 2. He must then serve an apprenticeship for three years. 3. He must pass successfully the examination which decides his fitness to be a 'pharmaceutical assistant.' 4. He must then serve in this capacity for at least three years. 5. He must reside at the university for at least one year attending the lectures on chemistry, botany, physics, materia medica pharmacy, etc., and must pursue a course of experimental chemistry in the laboratory. 6. He is then ready for the State examination; which consists of, 1. The tentamen. 2. The preparation of the thesis. 3. The course examination. 4. The final public examination.

These all passed successfully, he may now conduct a pharmacy of his own.

But as a special concession of the government is necessary before he can establish a pharmacy, and as only a limited number is allowed, one for from 7,000 to 10,000 inhabitants in the country, he is really obliged to serve as an assistant for many a year, before he can have an establishment of his own.

Thus the pharmacist of Europe, especially of Germany, is a thoroughly educated man of science and capable of making the most exhaustive investigations."

We have no cause to be discouraged as enduring results come of patient endeavor, and I belive that the results of this meeting will indicate real progress.

Since our last meeting our Corresponding Secretary, Mr J. L. Moseley, has been taken from us by death. Knowing him to be a man to be admired in all the relations of life—zealous in his profession and enthusiastic in his desire to contribute all he could to its advancement—it is fitting that I *pay this slight tribute to his memory.*

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Not the *least* of our efforts should be to develop among one another that "*esprit de corps*," which insures respect and solidifies the character of a profession; and as far as it is in our power, maintain this Association and the National Pharmaceutical Association, as agreeable and desirable means of modifying the limitations which attend the pursuit of a Pharmacist.

As a citizen of Columbus, I welcome you to our town and thank you for the compliment of your patience. Gentlemen of the Association, may we have many profitable and pleasant re-unions.

The Committee to nominate officers for the ensuing year, reported as follows: for president, John T. Buck, Jackson; for vice-president, F. H. Duquercron, Starkville; for recording secretary, P. H. Keefe, Vicksburg; for corresponding secretary, Hampden Osborne, Columbus; for treasurer, M. F. Ash, Jackson.

It was moved that the officers for the ensuing year put in nomination, be elected by acclamation. Adopted.

On motion that the President appoint a member of the Association to prepare an Essay, to be read at the next Annual Meeting. Carried.

The President having appointed Mr. Keefe, of Vicksburg, Essayist, who accepted the office of same by written communication.

Adjourned to meet in the city of Meridian, the second Wednesday in April, 1875.

P. H. Keefe, *Secretary*.

PHILLADELPHIA COLLEGE OF PHARMACY.

To the Board of Trustees of Philadelphia College of Pharmacy:

Your Committee to whom was referred the subject of granting the title of "Doctor in Pharmacy" to the graduates of this College, respectfully report:

That they have reviewed the discussion of this subject at the convention of the Teaching College of Pharmacy, held in Richmond, Va., in September, 1873, as also the answer of the National College of Pharmacy of Washington, D. C., to the resolution adopted by the said convention, (requesting the "National College," to reconsider its determination to grant the above-mentioned title.)

Your Committee are unanimous in the opinion that, however expedient a change in the title conferred by this College upon its graduates may have become, by reason of the advancement of Pharmaceutical Science, they see cause to deprecate the adoption of the title of "Doctor."

First.—On account of the branches of Pharmacy and practice of medicine being so closely connected with each other, that the title would tend to confusion. A Pharmacist engaged in dispensing medicines with the title of "Doctor" would naturally impress the public with the idea that his "title" authorized him to *prescribe* as well as to *dispense*. And notwithstanding all argument to the effect of *educating the public* to an understanding of the title, many would constantly apply to the Pharmaceutical Doctor when the *experienced*

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practitioner in medicine was really the person whose services they desired and required.

SECOND.—It should be the aim of all Colleges of Pharmacy to *guard* the public in the important matter of "remedies," against the evils attendant upon ignorance, and presumption without qualification; to this end we should exercise great caution not to confound the kindred professions of Pharmacy and Medicine, and so lay ourselves open to the charge of *promoting* empiricism by granting a title which *could be used* by persons lax in moral responsibility and professional ethics, to the detriment of the public, in the important matters of health and disease.

Your Committee are impressed with the view that our time-honored title of "Graduate in Pharmacy" should be adhered to, as the primary honor conferred upon the recipient of the Diploma of this College. Much might be said on both sides of an argument in regard to the lexicographic terms "Graduate" and "Doctor." Into this discussion we do not propose entering. It has been the aim of this College so to instruct its pupils that they could practice their profession with safety to the public, and with honor to themselves, and when the academic honor of the Diploma of the College is granted, it expresses the *simple fact* that the recipient has graduated or *taken a degree* or rank in the branches in which he has been instructed.

If by industry, study, and the cultivation of habits of close observation, or by reason of peculiar aptitude for any of the branches of natural science, a graduate should distinguish himself in after life, *then*, in the opinion of your Committee, is the proper time for the College to recognize his services by conferring *another degree.*

Your Committee therefore recommend:

FIRST.—That the title of "Graduate in Pharmacy" be adhered to on granting the Diploma of the College.

SECOND.—That a graduate of five years standing, engaged in the practice of Pharmacy, on presenting to the College an original dissertation of sufficient value, on any of the branches taught in this College, may have conferred upon him the title of ———

THIRD.—A graduate of this College, recognized by the Pharmaceutical Profession as an original investigator in any of the branches of the profession, or as an authority by reason of superiority in some branch of science, may have conferred upon him the title of ———

DILLWYN PARRISH, ROBERT BRIDGES,
JOHN M. MAISCH, JOSEPH P. REMINGTON,
ALFRED B. TAYLOR, CHARLES BULLOCK,
Committee.

CENTENNIAL OF CHEMISTRY, 1774, 1874.

At a meeting of the Chemical Section of the N. Y. Lyceum of Natural History, May 11th, 1874, President J. S. Newberry in the chair, the subject of a chemical centennial was discussed, and, on motion of Dr. H. C. Bolton, the following resolutions were adopted :

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Whereas, The discovery of oxygen by Joseph Priestly on the 1st of August, 1774, was a momentous and significant event in the history of chemistry, being the immediate forerunner of Lavoisier's generalizations, on which are based the principles of modern chemical science; and,

Whereas, A public recognition of the one hundredth anniversary of this brilliant discovery is both proper and eminently desirable; and,

Whereas, A social reunion of American chemists for mutual exchange of ideas and observations would promote good fellowship in the brotherhood of chemists; therefore,

Resolved, That a committee of five be appointed by the chair, whose duty it shall be to correspond with the chemists of the country with a view to securing the observance of a centennial anniversary of chemistry during the year 1874.

President J. S. Newberry, subsequently appointed the following committee of five: Dr. H. C. Bolton, Prof. C. F. Chandler, Prof. Henry Wurtz, Prof. A. R. Leeds, Prof. C. A. Seely.

EDITORIAL.

PHARMACAL TITLES.

We call the attention of our readers to the article which we publish in this number of the journal, "The Use and Abuse of Pharmacal Titles." It is contributed by one who can claim a title by right, having passed an examination and graduated, therefore the appellation of "sour grapes" cannot be laid at his door. This subject deserves the serious consideration of the teachers and officers of our Pharmacal Colleges and Associations, and all those who have the good of the profession at heart. We fear that the general application of titles as appendages to the individual names of our graduates, will soon bring the degrees into such *common* use as to destroy their real merit and honorable worth.

What we consider a serious mistake, has been committed by two of the younger teaching schools of pharmacy, in departing from the honored and expressive title of GRADUATE IN PHARMACY, for the high sounding but meaningless "Doctor of Pharmacy."

Thus already we have an example of the fruit of this evil, which illustrates what we consider a part of the approaching danger to the future progress of our profession in this country.

Whenever the question of money making enters the field, in the education of our students, then the good work of elevating the profession in this direction will cease; Colleges of Pharmacy will become the private enterprises of Tom, Dick, and Harry, who will associate themselves, get a charter as a teaching College of Pharmacy, call themselves professors, and grind out in their respective "grist-mills" graduates, masters or doctors, or confer any other title they may see fit to adopt, or which will command *the best* price. It will become a regular trafic in pharmacal titles, and the holders will be as numerous

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as locusts in Egypt. The public is not qualified to select the true and deserved title from the spurious and unearned, and the standing of the whole profession will be lowered in the estimation of the people. We have yet to see the advantages of these useless appendages to our names, they certainly do not add one iota to our stock of knowledge, and certainly are not sought by the really meritorious, who care nothing for the ornament of a letter or two attached to the name. To those who may be somewhat imbued with the recently developed American desire for rank and titles, we say that although we do not wish them to hide their light under a bushel, we do advise them to study the modest life and doings of the Father of American pharmacy, (the late Professor Procter), and strive to follow the precepts and example he has left us; certainly no title would have made him greater in the estimation in which he was held. Numerous as were the titles conferred upon him for his great labor and achievements in the cause of science, yet to him none was more acceptable than plain *Mister* Procter.

The remedy we suggest is that the teaching colleges who adhere to the old degree of graduate in pharmacy, form for themselves a strong and close union, agreeing not to recognize the course of instruction or the title conferred by the deviating schools, and use their combined influence that the diploma shall not be recognized in the states where pharmacal laws have been enacted, and where examining boards of pharmacy exist. This non-recognition would cause them to conform more readily than any other method of coercion that we can think of.

A feature we have frequently been tempted to call attention to, is the use of titles at our meetings. At these gatherings we meet as equals, we are members of an association which requires as a *qualification* that we be *pharmacists.* Therefore our titles, if we possess any, are foreign to the organization, and it is certainly not the place for their exhibition. Professors in colleges do not attend these meetings to give instruction in the rudiments of their respective branches, nor do M. D's attend to give information regarding the practice of medicine, or Ph. D's or Phar. D's to give a public exhibition of their respective philosophy, but we come together as pharmacists, to give and receive the experience and thoughts of each other on matters pertaining to our profession. We do not say this, to give offence to those who use these titles on such occasions, for we have been guilty of this same transgression, it is to call attention to the fact that in making this distinction in our meetings, and in the publication of our proceedings regarding persons, we commit an error.

We have frequently heard it said that the organization is managed by a few doctors and professors, and that others do not care to take any part in the discussions at these meetings. This is a feature which injures our usefulness as an association and should be done away with. We as Americans should be the last to assume *rank and titles*, for it is opposed to the spirit of the constitution of the country we live in. We find no fault with the use of these titles in their proper place, the student should certainly have a feeling of deference toward his

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teacher, the patient for his medical advisor, but it is not in good taste to make a distinction in a professional assembly, and it is not necessary to use any other title in our meetings than the common one of *Mister*, which simple title we must confess is getting unusual in this great country of professed equals. Since the close of our late war so many generals, colonels and captains cross our vision, that we may be forced to admit the necessity of using civil titles to keep pace with them, but for the present we leave the race to those, who have more fancy for such attachments, preferring not to advertise in this manner the fact of our graduation, for fear it might not otherwise be imagined.

> "The man of independent mind,
> He looks and laughs at a' that.
>
> The pith o' sense and pride o' worth,
> Are higher ranks than all that."

CORRESPONDENCE.

We have received the following communication which is published *verbatim et literatim.*

"Dear Sir:

We write simply to say, that, the article which has appeared in the "Pharmacist," of a pretended analasys of the "Iodo-Bromide of Calcium Comp.," so far as it may be intended to apply to us, *is a fraud*, and, inasmuch, as the different *German Journals* do not appear to agree in their statements concerning the same, it has a very suspicious look, to say the least, Having never sent any abroad, or had any correspondence concerning it, We are unable to account for it.

In due time we hope to be in possession of all the facts which we shall publish. Truly,

Tilden & Co."

New Lebanon, N. Y., June 13, 1874.

We published in the June number of the Pharmacist, a copy of an analysis, (not an *analasys*), of a preparation called Iodo-Bromide of Calcium Comp., and have attempted to make an "analasys" of the above letter, which seems to have some reference thereto. It was somewhat difficult to detect the therapeutical significance of the comp., but infinitely more so to arrive at the grammatical significance of this letter.

The writer tells us " we write simply," etc., well it might be simple to a Champollion or a Niebuhr, but to us dark as a Sphynx's riddle.

But of what does he "write simply," here it is, "of the article which has appeared in the Pharmacist of a pretended analasys." Now, after some years of practical experience as an analytical chemist, we have yet to learn what part of an analysis "the article" is. It certainly must be an indefinite article. However, upon reading the text again, we discover that this is "the article of a pretended anala-

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sys," which carries the whole subject entirely beyond our reach, for we don't know what an "analasys" may be, and hence we give it up. Further, we are gravely assured by the writer, that "so far as it may be intended to apply to us, is a fraud," leaving us thus hopelessly in doubt which is the fraud, the article, the "analasys," the Comp., or the writer.

Again he thinks "it" has a suspicious look, "it" certainly has, but we are not clear whether his "it" and our "it," or the "it" of the German chemist be the same "it" or not. However, we will concede this point to him, and admit that the whole subject connected with Iodo-Bromide of Calcium Comp., has a suspicious look.

In publishing "the article" the PHARMACIST had no intention of "applying it" to any one, therefore no "suspicion" can apply to us.

PARIS, June 9th, 1874.

To the Editor of The Pharmacist:

The number for January, 1873, of THE PHARMACIST, (page 14) contained an article titled "*Preparations of Phosphorus*," by Dr. Sam'l R. Percy, of which I claim the entire priority. Some six ye ars ago I described in full, all that relates to phosphoretted oil, and the substances which hinder its phosphorization, etc.: (*Journal de Pharmacie et de chemie*, 4 *series*, *vol. viii*, *page* 37; *vol. ix*, *page* 13 *and* 94, *and vol. xi*, *page* 401.) In these essays I demonstrated the peculiar influence upon oil of Sweet Almonds by the elevated temperature of 220° to 250 C. for the preparation of phosphoretted oil.

For several years, there existed in my laboratory in the Necker-Hospital, and in the cabinet of the Superior School of Pharmacy of Paris, a number of balloons (of Glass) of phosphoretted oil, some of which contain oil prepared with ordinary oil of Sweet Almonds, and others with the same oil of Sweet Almonds, but heated to 220°—250° C. Those which have been prepared without any increase of temperature have become red, in consequence of the transformation of the ordinary Phosphorus into red or the amorphous kind; whereas, when the oil is heated before the solution of the phosphorus is effected, a product is obtained which is not changed by light, if protected from contact with the atmosphere. I have also described phosphoretted Cocoa-Butter. The "formulary" of the French Military Hospital has adopted my process, and no one in France has contested the priority of my investigations upon this subject.

I mailed to your address several of my essays on Phosphoretted Oil, the first part of which was probably lost "en route," for it does not appear in the acknowledgement of "books received" in the May number of the PHARMACIST. When you receive the copy I have forwarded to you, you will at once be convinced that the pretended labor of Dr. Percy upon this subject is a copy of my memoire, the only difference being that the Centigrade degrees of temperature have been changed to that of Fahrenheit!

There circulates in foreign journals a process for dissolving *Benzoate of Iron* in oils, which is credited to Mr. Sodin. How much

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claim he has to this is readily seen by the action of the societié de Pharmacie, by whom his claim was investigated with the following result: " Mr. Mayet, in the name of the committee appointed to examine a reclamation of priority by Mr. Sodin concerning the solubility of *Benzoate of Iron* in Oils, reports: that this assumption has no claim of priority, the fact having been made known and published in 1868 by Mr. Méhu, while Mr. Sodin announced it in 1871. (*Journal de Pharmacie et de chemie*, 1872, 4 *séries vol. xvi. page* 444.)

Yours very truly,

C. MEHU,

Pharmacien de l'hospital Necker á Paris.

EDITOR OF THE PHARMACIST :

I am reluctant to suggest anything that might induce any one to add a jot or tittle to an already glutted pharmacy, unless it should be something which has peculiar merit, and has never before formed a part of the *materia medica.* But in view of the fact that physicians everywhere are more and more growing into the habit of prescribing the active principles of drugs, it seems to me that a more eligible form of administering them might be adopted than the present one. I submit in reference to those active principles I am about to mention, that the present form of elixir, pill, etc., are not the safest that could be devised, if indeed they can be regarded safe at all. I submit, also, that under ordinary circumstances, under the pressure of business (miscellaneous), with scales and apparatus of varying accuracy, clerks of varying competency, such active agents as strychnine, arsenic, aconitine, atropine, antimony, bichloride of mercury, scammonine, jalapine, cantharadin, etc., cannot be safely dispensed *extemporaneously;* hence, I would have these agents carefully prepared and constantly on hand in the form of powder, combined with a suitable excipient like sugar of milk, triturated and intermixed by machinery with scrupulous precision. I would further recommend that the French decimal weights and measures be used, that a grain of the prepared powder may contain one-tenth, one-twentieth, one-fiftieth, one-hundredth, and even one-thousandth or less, (for infants for example), of these agents. At some future time, if desired, I will give more fully my reasons for desiring to see these new preparations on the dispensing shelves.

Very Truly Yours,

CHICAGO. JAMES I. TUCKER, M. D.

[We approve of the *element* of safety, as contained in the suggestions of our medical correspondent, but we think the same result might be obtained if the physician were to prescribe these active agents in a dilute form as recommended, thereby saving the apothecary the addition of one more class of remedies to his already overburdened shelves. We shall be pleased to hear the Doctor's argument in favor of the proposition.—ED.]

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ON ADULTERATIONS AND SOPHISTICATIONS.

At the meeting of the American Pharmaceutical Association held at Baltimore, in September, 1873, the *Committee on Adulterations and Sophistications* presented their report, which is now in the hands of the members of the Association. The facts which the Committee have brought forward are, it is to be feared, but a bare outline of the fraudulent practices prevailing both at home and abroad, and the report itself is not at all commensurate with the labor bestowed on the collection of facts, which were mostly derived from published papers and from information which the members of the Committee were enabled to gather in person.

The subject however is one, in which each member of the Association should personally feel a deep interest, and to which *all* should contribute. The varied degrees of supply and demand in different sections of our country produce a corresponding variation in frauds, and it is only by combined energy that anything fruitful can be accomplished. As it is of the utmost importance, that all deceptions be exposed and information thereof be disseminated as soon and as far as possible, each member should be on the look-out for facts, and transmit the same at once to the Committee. It is hoped that not only the members of the Association, but all others interested in the good work will respond to this call and lend their aid.

The subjects to which your especial attention is drawn are the following: *Chemicals*, *Pharmaceutical preparations*, *Crude Drugs*, *Dyestuffs*, *Paints*, *Oils*, *&c.*, *&c.*, *Articles of food and drink*, *Miscellaneous articles.*

Communications on the subject, (if possible accompanied with samples), are requested to be addressed to the Chairman of the undersigned Committee. Respectfully,

Charles Rice, Bellevue Hospital, New York City, *Chairman;* Emil Scheffer, 115 E. Market St., Louisville, Ky.; T. N. Jamieson, 612 Cottage Grove Ave., Chicago, Ill.

We have received the following pamphlet from the author:
On Qxyphenylsulphurous Acids, and on the *Oxyphenylsulphites.*

A Thesis for obtaining the diploma of pharmacist of the first class. Presented and defended February, 1874, by Octave Goudard, Livry, (Seine-et-Oise), *France.*

CEMENT FOR LEATHER.

Pure Gutta-percha,.............................5 drams.
Bisulphide of Carbon,..........................4 ounces.

Cut the gutta-percha into very thin strips by means of a wet knife or scissors, and put into a well stopped bottle together with the bisulphide of carbon, and agitate frequently until dissolved.

This is used extensively in patching boots and shoes, as it makes an almost invisible patch.

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THE PHARMACIST.

VOL. VII. CHICAGO, AUGUST, 1874. No. 8.

PHARMACAL ITEMS.

BY ALBERT C. WEHRLI.

The want of uniformity in the containers, and labels of chemicals and pharmacals furnished by the manufacturer, has appeared to the writer as a great impediment to the pharmacist in compounding prescriptions. When placed upon the shelves of the apothecary, they present an appearance by no means in keeping with the general regularity of the place. It is an objection which all the care and attention of the pharmacist possible to bestow cannot eradicate. If done at all it must be by appealing directly to the manufacturers themselves—in whom the power lies.

For if containers are furnished at all, why could not a more uniform style be adopted, which, if not benefitting them pecuniarily, would at least afford them the satisfaction that their goods are packed and labeled in a manner most convenient to be handled, and which will be sure to be appreciated. The many different styles of manufacturer's labels, is one of the chief causes of annoyance in selecting a desirable container. Were they all labeled in a uniform manner, as, for instance, the Latin officinal name first, then the English officinal name following, much would be done toward lessening this inconvenience which even the most thorough sometimes experience.

But especially would this be a help to the beginner in pharmacy, who is often puzzled to know where to find an ingredient upon which he is reading or otherwise interested in. The advantage of having both Latin and English names is obvious, as both could be consulted, thus forming a double assurance against any error which otherwise might occur. The present custom of blowing their monograms in their bottles is detrimental to the interests of the pharmacist, as, if they were without this feature, they could be utilized in dispensing liniments, etc., disposing of them at a small price they might be the means of averting the injured feeling which often exists in the mind of the customer, who often pays more for the bottle than for the contents.

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The objection might be raised that in doing away with the monograms, room would be given for spurious imitations, which would otherwise be less liable to exist. But this difficulty might be met by impressing the requisite characters on tin or other foil securely fastened over the cork cut even with the lip of the bottle. The old style of impressing on wax is objectionable from the fact that particles of wax are liable to fall into the bottle in removing the cork.

The simple sealing of the tops of corks by pharmacists has an attractive appearance, though the impression is often spoiled by the seal adhering to the wax, which tendency can be removed by rubbing the seal on an oily surface.

It may not be out of place in this connection to mention a few facts for which the pharmacist himself is more accountable. Prominent among these are the stock labels, which might be greatly improved upon, for instance, Ammonia is often labeled *Spirits of Hartshorn* and Compound Spirit of Ether, *Hoffman's Drops*, and many others equally as inappropriate.

It should be the duty of every pharmacist to familiarize his patrons, as far as in his power, with the true nature of what they are receiving, and which should take the place of that selfish spirit so often evinced for fear some one might benefit by it.

If in times past our best and ablest men had been otherwise than liberal minded, pharmacy would not be to-day what it is—a benefit to all mankind.

The prescription bottles of a well regulated pharmacy would be near perfection, if it were not for their capacity often amounting to two drachms more than required, which makes it impracticable to measure directly into them.

Every time it is done a loss is sustained, which if computed, would in time, show an amazing amount. Pharmacists would do well to secure accurate vials, if for no other reason than their own personal advantage.

SUPERNUMERARY PREPARATIONS.

BY ADOLF G. VOGELER.

"I would have the more powerful agent combined with a suitable excipient in a certain proportion and thus prepared kept constantly on hand by druggists," says Dr. J. I. Tucker, in the PHARMACIST for July. No! No! have mercy upon the already glutted pharmacy, we don't want any more! or must we per force suffer according to the maxim: "to him that hath shall be given?" The over-burdened shelves will bear no more.

The surmise in lieu of argument, as to scales, clerks, etc., will need considerable support in order to become tenable. What has become of our scales that they henceforth refuse to indicate a quarter of a grain, or an eighth, sufficiently correct for practical purposes? or where are the clerks (assistants) who cannot accurately weigh that

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amount? Are butcher's balances employed and blacksmiths stationed behind them?

Reduce the multiplicity of galenical preparations! Such is the universal cry, and undoubtedly every pharmacist looked forward to our last revision of the pharmacopœia for fulfillment of this long-cherished desire. But, alas! in vain. Not only have all superfluous combinations been retained, but the number of preparations has been augmented by almost a hundred. At such a rate, imagine what after the lapse of half a century, will our codex look like? I do pity the student of that period!

On the members of the healing profession it would but reflect credit, if they could emancipate themselves from all fogyism and try to be original, not relying on mixtures concocted 4000—5000 years ago by some asclepiadically inclined sheep-herder or horoskopicold. Why do physicians direct such mixtures as the following to be dispensed? viz.: hive syrup, paregoric, arom. syrup of rhubarb, of each a suitable quantity, mix. But a very limited number have any knowledge of the composition of the above, certainly as far as proportions are concerned. With the array of tinctures, fluid extracts and proximate principles at our disposal, why not put them to use? Are practitioners so deficient as to require "authorities?" Of course not. But it is so convenient; they must not bother with calculating doses—but to have A., B. and C., manufacturers of those nostrums that lay claim to the absurd title of "elegant pharmacy," prepare the concoctions for them, thereby relieving them of all necessary brain work in the treatment of disease.

In this place I may be allowed to consider the abominable habit of numerous physicians of prescribing remedies either in a very concentrated or diminutive form. Why must 60 grains of quinine be given in one ounce mixture? The cause for such practice as mentioned above, may possibly be sought in a desire on part of the doctors to have their patients procure their medicines at a reduced figure, thereby to gain a reputation to that effect amongst their patrons.

Returning to our question, let us particularize a little, following the pharmacopœia as we advance.

There are the *decoctions.* With a very few exceptions all could and should be discarded. Let a simple rule be established that to make a decoction, boiling must be continued for fifteen minutes, unless otherwise stated, the physician establishing proportions, and one-half the formulas become superfluous. The compound decoction of sarsaparilla especially is for several obvious reasons a most ridiculous appendage; the fluid extracts of sarsaparilla and mezereon, why not turn them to account.

Further on we encounter *compound fluid extract of sarsaparilla.* Indeed, it is difficult to percive on what grounds such a preparation has been retained, as well as the *fluid extract of senna and spigelia.* They are mere place fillers.

The newly introduced class of *glycerites* may be passed with the remark, that they do not seem to have been exactly demanded.

Next in order come *infusions.* Physicians ought to know whether

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a cold or warm extract is desirable. Then by fixing upon a warm infusion to be made by maceration for two hours in a covered vessel, and a cold infusion by simple percolation. But few of this class remain, the utility of which again is questionable, they appearing only extremely seldom on prescriptions.

Under the caption of *mixtures*, the compound mixture of licorice reflects strongly on the skill of medical men, and it is difficult to tell why the expensive mixture of citrate of potassium must be a concomitant of a solution of the same name.

From the list of *pills* a large number of formulas might well be ejected without serious loss to anybody.

Powder of aloes and canella; of jalap compound, and of rhubarb compound, could be prescribed ex tempore.

Now in regard to *suppositories* I consider their introduction a nuisance. What pharmacist keeps them already made, or what peculiarity is there about any of them which would forbid their being prepared extemporaneously? General information as to size and nature of excipient might be in place, the balance to be left to prescriber and dispenser.

The respective fluid extracts combined with M. D.'s brain-action, and some simple or other kind of syrup, can most easily be made to replace the eminently effective (?) *compound syrup* of sarsaparilla.

Tincture of *rhubarb and senna* also is under ban.

Lastly, but not the less deservedly, to come under censure, we find the *medicated wines*. The excuse for their existence given in Wood's dispensatory I consider very weak. "Wine as a menstruum is advantageous because of its extracting some substances insoluble in pure water. and having a tendency to resist spontaneous change, besides being less stimulating than proof spirit, as also possessing superior solving power on account of minute portions of vegetable acids being present." Well, it would be very interesting to find out if a mixture, consisting of one part of deodorized alcohol, 4-5 parts of water with a little sugar and citric acid, will possess properties, pharmaceutical or therapeutical, in any manner different from "wine" as bought in an American market; or, if truly natural wines are considered therapeutically preferable to alcoholic menstruums, then why not have the application of wine extended to a much greater number of preparations?

CHICAGO, July, 1874.

SUGGESTIONS AS TO THE PREVENTION OF MISTAKES BY DRUGGISTS.

"Polyhistor," (Hans M. Wilder), writing to the *Druggists' Circular*, gives the following practical suggestions on this important topic:

"I propose the following, which would occasion very little, if any, trouble:

1. Put all poisonous alkaloids (excepting morphia) on one of the

topmost shelves, behind the shop-jars or bottles. In this way they will not disfigure the store, being always in small bottles, and the topmost shelf being generally quite high. It is easy to understand that none of those alkaloids can be given by mistake, since you have the trouble of using your step-ladder or a' chair to get hold of them, trouble enough to set you a thinking what you are going to do (most mistakes arising from being half asleep, so to speak).

2. Do not keep any shop bottles with glass labels for poisons, but keep them in their original package. This prevents them from being kept in line with the remainder of the bottles, and does away with one source of mistakes.

3. Keep morphia on the top shelf of the prescription counter, and quinine on the bottom shelf; their original packages suggest this arrangement. Arsenic to be kept under the counter, and corrosive sublimate best with the poisonous alkaloids; if the latter be considered too much trouble, then put it on one of the prescription counter shelves (say among the extracts), but not next to calomel.

4. In conclusion, I must beg my very young colleagues to keep in mind, that no physician intends to prescribe morphia or strychnia or atropia, etc., in, say, five to ten grain, or half-drachm doses, or any other unusual quantity, however sure you may seem to be that you read aright. Make out a list of all poisonous substances and write opposite the maximum dose (you can find it in Wood & Bache, or in Parrish); learn this list by heart, or, better still, paste it on one of the uprights of your prescription counter, so as always to have it before your eyes. When you are in doubt ask your superior, but do not try to guess; as you grow older you will be more able to rely on your own judgment. There is no shame in not knowing or recollecting everything.

5. It is in general well enough to do things quickly, but in a drug store give yourself sufficient time to ascertain that you have got hold of the right bottle before you weigh or measure out; and, when you replace said bottle on the shelf, give another look at the label, however morally sure you may feel that you have made no mistake. Let this, *twice looking at the label*, become a habit with you.

6. Do not put together two or more drugs or preparations that look pretty much alike. For instance: do not put oxalic acid next to granulated potass. nitr. or ammonia murias; neither put aq. ammonia next to any of the medicated waters, spirit. æther. co. or spirit. æther. nitros. etc.

The rule will then be to put all dangerous drugs or preparations between two dissimilar ones. The liability of taking hold of the wrong bottle will thus be much diminished. By the way, it would not be a bad plan to arrange *all* the bottles according to the last rule. Many disagreeable mistakes may in this way be avoided; for example, to give spir. menth. pip. for spir. limonis, or pulv. cubebæ for pulv. extr. glycyrrhizæ, etc.

You will perhaps say, that no ordinarily careful pharmacist will happen to make such blunders; that is so, but if you only knew how

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much in a double-quick hurry my young colleagues generally are, you will not deem the above rule much amiss.

I think these six rules will be of greater service than using bottles with rough exterior, or otherwise marked."

CORTEX RHAMNI FRANGULÆ.

BY JOSEPH INCE.

I hold it strictly within the province of a pharmacist to make himself acquainted with, and to communicate to others the therapeutical characteristics of a drug, or the medicinal value of any substance in Materia Medica. Were this not the case, one-half of the papers annually contributed would be excluded, and medicine, as much as pharmacy, would suffer.

It is not for us to attempt the treatment of disease, but surely it is not wandering beyond our sphere to recommend and advocate the use of such remedies, whether new or old, which both observation and experience have proved of service.

Knowing then from recent investigations that the Rhamnus Frangula bids fair to be a valuable addition to our list of purgatives, I venture to bring before the notice of the reader what is at present known respecting its introduction, its history, and its remedial application.

The Rhamnus catharticus has long enjoyed a popular reputation: the botanical difference between that and the Alder Buckthorn (Frangula) is pointed out by Bentham, who describes the latter as growing in hedges and bushy places throughout Europe and Russian Asia, except the extreme north. In Britain rather more frequent than the common Rhamnus, but still rare in Scotland. Flowers in the spring or early summer. An elaborate analysis of the two barks is given by M. Gerber (*Pharm. Journ.*, vol. ix., p. 537, Old Series) and commented on by M. Binswanger. The inference drawn from the results obtained was that on the peculiar nature of the *bitter matter* depended the variation in medical efficacy.

That contained in R. Frangula was more of the nature of resinous than of extractive matter, and was very soluble in cold alcohol. The bitter matter of R. catharticus was crystallisable, soluble with difficulty in alcohol, but very readily in water; the taste also differed from that of R. Frangula, being not disagreeable, but purely bitter.

The first memorandum on Rhamnus Frangula is a note from Mr. George Mennie, of Plymouth, who recommends it as an aperient (April 7, 1843). When Mr. H. Baildon made some brief remarks on Rhamnus Frangula, at Edinburgh, his suggestions, being very short, did not excite particular interest, but to that gentleman is entirely due the introduction of this bark. A Dutch friend, Mr. Baruchson, sent a small sample to Scotland for examination. Senna we well know, and children better, and it was claimed for the new aperient that it would act as an efficient purgative without the griping and

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nauseous qualities of that unhappy Alexandrian leaf. In Holland it was in constant use, being there prepared simply as a decoction. The formula was:—

Cort. Rhamni Frangulæ, ʒ iv.
Aquæ Oj., decoque *ad Oss.*

Dose: Two or three tablespoonfuls for an adult, night and morning, occasionally.

I have tried it in that form with admirable success; but seeing that in private families few are sufficiently skilful to make an accurate decoction, and that in aristocratic circles none will take the trouble, I recommended a proof spirit tincture, but was anticipated by Mr. Giles, who proposed a liquor, the production of which was further improved by Mr. Baildon. One precaution, however, must be borne in mind. There are two classes of bark, the one obtained from trees of older growth, or from the thick part of the trunk; the other, "the bark of the younger trunks and the larger branches of the indigenous shrub, gathered in the spring." This description is taken from the "Pharmacopœia Germanica," and it is this latter variety that should alone be used. I have permission to quote the formula to which reference has just been made.

Liquor Rhamni Frangulæ.
[Black Alder.]
℞ Cort. Rhamni Frang. 60 ozs.
Exhaust by decoction (*more Giles*) and reduce to 320 fluid ounces.
Add—Rectified spirit, 80 ozs.
Product, 20 pints.

Mr. Giles's process will be found in the "Year Book, 1873," p. 258. Its object is "to effect the exhaustion of a drug with the minimum volume of solvent by submitting it to successive contact with fresh portions of the menstruum."

Proceeding in this manner, the reduction is effected by careful evaporation in a water-bath to a suitable consistence. Mr. Baildon uses the same proportions, but prepares his concentrated decoction *in vacuo*, and then adds the rectified spirit. The liquor is exactly three times the strength of the ordinary decoction.

It is hardly needful to observe that the establishment of a non-drastic purgative in our Materia Medica would be a boon of no secondary order. Numerous experiments, medically conducted, have been initiated, and with satisfactory result.

Mr. Baildon would deprecate any remarks bordering on the nature of advertisement, and, therefore, confirmatory private evidence, however flattering, must be withdrawn. I hold in my possession, however, a report on the aperient qualities of Rhamnus Frangula, drawn up with minute accuracy, which would show that, at least, in some instances, the liquor Rhamni has proved marvellously effective.

The dose of liquor Rhamni Frangulæ is one dessert or table spoonful, in a wineglass of water, night and morning as required. For children, in whose case its use is specially indicated, one teaspoonful

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occasionally in a little water. When the time comes for a new Addendum, I would venture respectfully to suggest that this bark, and the intrinsic value claimed on its behalf, should receive the attention of the Medical Council. It has made its way without adventitious aid, and already has been accepted as a safe, pleasant, and efficient purgative.—*Chemist and Druggist.*

THE PURITY OF DRUGS AND PHARMACEUTICAL PREPARATIONS.

BY THE EDITOR OF THE LONDON PHARMACEUTICAL JOURNAL.

The case reported in last week's Journal, of prosecution for the sale of adulterated scammony, and the letter of Mr. Urwick in the present number, as well as some other instances that have recently been made public, all tend to impress upon the retail dealers in drugs the responsibility of their business. They also tend to suggest to retailers the indispensable necessity of exercising considerable caution in regard to the quality and purity of the drugs and preparations which they sell, so as to protect themselves from the consequences of prosecution under the Adulteration Act.

On a recent occasion, both Mr. Horner and Mr. Hodgkinson, in giving evidence before the Select Committee on the Adulteration Act, expressed a decided opinion that the wholesale dealers in drugs and pharmaceutical preparations, exercised a protective influence in favor of retailers. According to their view, the practice of the wholesale dealer is to take care that only drugs of unquestionable quality are supplied to those who require it. They also stated, quite as decidedly, that there was no difficulty in obtaining drugs and preparations of good quality—that is a fact it was wholly a matter of price, and for those who demand it, there would be no hesitation in guaranteeing the articles supplied.

As an illustration of the necessity of exercising caution in purchasing pharmaceutical articles, I will mention an instance that recently came under my own observation. A manufacturer of citrate of iron and quinine was offered what appeared to be an excellent sample of sulphate of quinine, at a price much below that now ruling for either the English or foreign makes of this article. It was the produce of a well-known Continental maker, and was offered by a house of unquestionable respectability acting for him in England. The reason given for the low price, and for not selling the salt in bottles, with the maker's label was a very plausible one, that it contained "a very trifling per centage of chinchonidine." By accident, the sample came into my hands, and on analysis I found it to consist of

Sulphate of chinchonidine,....................60 per cent.
Sulphate of quinine,.........................40 per cent.

Assuming that the 2000 ounces of this article offered for sale had been purchased, without further inquiry, and converted into citrate of iron and quinine (?), it does not require much power of imagination

to appreciate the possible consequences that might have ensued if some of that preparation had found its way into the hands of a competent public analyst; or to perceive what damage and discredit might have fallen upon the manufacturer and dispensers who had made and employed it.—*London Pharm. Journal.*

SPANISH FLIES.

BY A VILLAGE PHARMACIST.

Only two insects are now admitted into our Pharmacopœia, namely, Spanish Fly (*Cantharis vesicatoria*), and the Cochineal insect (*Cocus Cacti*). The name Spanish Fly is not exactly correct: strictly speaking, it is beetle, and even "Spanish Beetle" would be scarcely accurate, for though it was formerly procured almost exclusively from Spain and Italy, it is now chiefly obtained from St. Petersburgh and Sicily,—not because we are unable to secure a supply from Spain, but because the Russian insect is much more valuable. It would be difficult, perhaps, to detect a sample from Russia if placed by the side of a Spanish specimen, so far as external appearance is concerned, but it is a stubborn fact that the drug brokers show strong preference for the parcels from St. Petersburgh to those from the south of Europe. The insect is found, though sparingly, in the south of France, and English invalids, who spend the summer at Montpelier, often find a specimen when passing through the stoney and rough olive yards. It may surprise some readers to hear that it is also an English insect; nevertheless this is the fact, although it is so rare and is met with so seldom that it cannot be made serviceable. Suffolk is a paradise to the enthusiastic entomologist, for, he there meets with many exceedingly rare specimens for his cabinet, and in the summer and autumn of the year 1837 an immense quantity of the cantharides appeared at Colchester. They are said to have literally swarmed on the ash trees in that neighborhood, so much so that the trees were repeatedly beaten with long poles to rid them of the insect, which threatened to strip them of their foliage and thus destroy the trees. In the same year they abounded at Ipswich, as well as in many other parts of the country, and they were also reported in the Isle of Wight. A physician in the latter locality, evidently awake to his own interests, collected a quantity and used them in the place of the exotic specimens. We are not aware that they have ever been observed in any quantity since 1837, but it is well to bear this strange entomological freak in memory, so as to make it useful should it occur again.

If the Spanish fly is looked at carefully it will be seen to bear a considerable resemblance, externally, to our common beetles, in the shape and formation of the wing cases, etc. It is placed in the large order called *Coleoptera* (beetle family), and in the family *Cantharidæ:* in this family every species, more or less, possesses blistering properties.

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The generic name applied to this beetle is very old: it was known to the ancients, in whose writings we first become conversant with it, although much obscurity hangs over it, and it is difficult to tell exactly which family is intended. Pliny says, "Cantharides is produced by a small grub, found more particularly in the spongy excrescences which grow in the stem of the dog rose, and still more abundantly in the ash." He is certainly in error about the insect on the rose bush, but the one on the ash tree agrees with the place where the true *Cantharis* is generally found. Our English children call the large red sponge-like excrescences on the dog-rose (*Rosa caniva*) "Robin redbreasts and pincushions."

Royle states that the Greeks used a blistering insect, but it was distinguished by having yellowish bands running transversely across the *elytra* (wing cases): this is not the true *Cantharis*, but a species of *Mylabris*, a Coleopterous insect closely allied to *Cantharis*. The officinal blistering fly has had almost as many generic names as a Spanish grandee. It was called *Meloe* by Linnæus, *Lytta* by Fabricius: the name by which it is at present recognized by pharmacists (*Cantharis*) was given by Geoffrey.

Their presence, when living, is said to be easly detected by the strong fœtid odour which they exhale; so offensive is this odour in hot sultry weather that public walks and gardens are frequently deserted until they have disappeared. Little more than a week makes up the short span of their existence in the perfect or winged state.

If slightly touched they feign death and fall to the earth: this habit is not unknown to the collectors. The odour exhaled from them is not only offensive, but it is stated to affect the eyes and cause ophthalmia in persons who collect them, In early morning the beetles are in a semi-torpid state, therefore it is the custom to spread cloths on the ground beneath the trees, and, having covered their faces and hands, proceed to beat the branches with long poles: they are then easily detached and fall on the cloths. To destroy them they are placed in large hair sieves over boiling vinegar: the vapour speedily destroys life. Afterwards they are dried befoie being exported by exposing them on hurdles covered with paper, in a shady place.

The American pharmacists use two other species of *Cantharis*, which appear to possess powerful vesicant properties, namely, *C. vittata* and *C. cinera*. The former insect is commonly called the "Potato Fly;" it feeds on leguminous plants, such as peas and beans, and is described as having longitudinal yellow bands on the wing cases. In America it is esteemed in preference to *C. vesicatoria*.

Cantharides are frequently purchased in this country by the retail chemist in a powdered state. They are not unfrequently adulterated with other insects before being exported. We have heard many complaints about powdered Cantharides not keeping long in stock. Sometimes it becomes mouldy and almost inert: this is caused by being damped with water before being ground. Sometimes it is infested with an insect, but this need never be the case if the chemist would take care when receiving any new stock to place small lumps of camphor in the jars, ond to keep it in tightly stoppered bottles.

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The active principle—Cantharidine, $C_{10}H_6O_4$—is a crystalline substance, first discovered and named by Robiquet. It is white and glistening, and has a flat plate-like appearance: it easily fuses into a yellowish-looking oil, but volatilizes at a high temperature. It is remarkable that both water and spirit will dissolve it from the Cantharides, but if first prepared or isolated it is then insoluble in either menstruum. It is an unpleasant chemical to experiment with, because of its injurious effects upon the eyes, causing great irritation and weakness. In a pure form so small a quantity as the one-hundredth part of a grain will raise a large blister on the human skin. Besides the active principle, a fatty matty matter, a greenish oil, and several other distinct pıoducts have been discovered in Cantharides. It may be observed that all the family (*Cantharidæ*) contain both the green fatty or oily matter and Crntharidine in a larger or smaller quantity.

There are other beetles, of the genus *Meloe*, closely allied to the true *Cantharis*, known as "Oil Beetles," which also possess blistering properties. According to one of our entomological writers, these are sluggish, wingless beetles, having but small elytra. They are found in spring slowly crawling over buttercups, violets, etc., on heaths and commons. When handled they emit, from their legs principally, a peculiar greasy substance (yellow oil), from which circumstance they have acquired their popular name of oil beetles. This oily substance has been used for rheumatism and dropsy, and has also had the reputation of being a specific in hydrophobia. Dr. Leach states that Frederick the Great purchased the nostrum from the discoverer for a valuable consideration, as a specific against the bite of a mad dog, and in 1781 it was inserted in Sect. ii, p. 25 of the "Disp. Boruss. Brand." According to this publication, 25 of these insects preserved in honey, with two drams of powdered black ebony, one dram of Virginia snake root, one of lead filings, and 25 of fungus sorbi, are reduced to a very fine powder, which, with two ounces of theraca of Venice (and if needful with a little elder root), is formed into an electuary. This is one amongst the hundreds of other so-called specifics against hydrophcbia.—*Chemist and Druggist.*

ILLUSTRATIONS OF THE LITERATURE OF QUACKERY.*

BY HENRY GIBBONS, M. D,

That "people like to be humbugged," is a saying more practical than elegant ; and it is exemplified, more than in any other way, in the universal currency given to impostors and impostures that concern the public health. Physicians are often censured for not taking more pains to separate the false from the true, the spurious from the genuine, in medicine and medical practice, so that people may discriminate between them. If the discrimination were made, it is not certain that

* Read before the California State Medical Society at the Annual Meeting,

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the popular current would be turned in the right channel. There is no doubt that many persons would be more attracted, as, indeed, they are already, by the meretricious trappings of charlatanry than by the more sober claims of science and truth. Whether for good or for evil, I propose, on the present occasion, to give utterance to some thoughts and observations bearing on this subject.

A large proportion of the patent and secret medicines with which simple-minded people delight to experiment on their organs, have been stolen from the regular profession. A patient who believes that he has been cured by a certain prescription, grows enthusiastic in favor of the remedy, and recommends it indiscriminately. It is surprising what multitudes of men and women will advise medicines and what multitudes will swallow them, on this primitive logic. One is reminded by it of the saying of Franklin, that when he considered to what bad uses human reason is often applied, he was ready to wish that Providence had bestowed on man a sensible instinct in its stead. Popular therapeutics seldom rise above the standard of the historic quack, who discovered by experience that a salt herring would cure a Scotchman of a fever, but would kill a Frenchman.

With better judgment and better opportunities, apothecaries sometimes prostitute their office and beget nostrums. Behind the counter, handling prescriptions, they have frequent means of ascertaining the effects of certain agents or combinations on certain diseases. Appropriating to their own illegitimate purposes the knowledge thus procured through the patients of the medical man who confides to them his prescriptions, they add to the already prolific spawn of secret cure-alls. Thus they become not only prescribers but quacks and nostrum-mongers. At this moment the street cars of San Francisco exhibit posters offering a thousand dollars reward for a case of whooping cough which cannot be cured by a compound prepared by one of our apothecaries.

The only female apothecary I ever knew flourished in my native town in the State of Delaware, when I was a lad. She was well educated for that day, and she educated herself still further by gathering from her customers all the information she could obtain as to the diseases which the prescriptions that they brought to her were designed for, and the effects. This information she recorded in a book kept for the purpose. Her ingenuity and industry were rewarded by a valuable clinical record, more complete and more practical, most likely, than any which were kept by the doctors who wrote the prescriptions. In this way she learned the art of prescribing. It so happened that my father, who was a physician, was in the habit of prescribing for the flatulent colic of infants a mixture containing oil of anise, with magnesia or chalk. The female apothecary soon discovered the value of the preparation, and forthwith engaged in the manufacture and sale of it on her own account, announcing it as "*Dr. Gibbons's Colic Drops.*" My father detested quackery in all its phases, and I well remember his consternation when he discovered that his prescription had been converted into a nostrum and his name identified with it in this manner.

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I may remark in passing that "*Mrs. Winslow's Soothing Syrup*" owes much of its virtue to oil of anise, and that it is essentially a mixture of this oil with morphia—the latter in variable proportions, but in quantity sufficient to have proved fatal in a number of well-attested cases. In fact, "Mrs. Winslow's Soothing Syrup" is one of the most dangerous nostrums in the market; nevertheless it is sold by apothecaries in general, and by some even placarded conspicuously in their windows!

The senior members of the profession will recollect a long string of "panaceas," "catholicons," pulmonic balsams, and so forth, commencing with "Swaim's Panacea," about half a century ago. An ignorant book-binder in New York, who could not even write his name, contracted a disreputable disease, for which he was treated by Dr. Quackenboss, then an old practioner in that city. He was cured by the aid of a preparation of sarsaparilla, similar to the French *Syrup de Cuisinier*, the formula for which the doctor kindly gave to his patient, that he might save expense by manufacturing it for himself. Swaim removed to Philadelphia, and conceived the idea of turning his personal experience to profit. He made a quantity of the syrup and took it to the Pennsylvania Hospital, and asked permission to give it to some of the patients. The patients appeared to be benefited, and Swaim then requested Professors Chapman and Gibson, visiting physician and surgeon of the hospital, to give him their estimate of it in writing. This they did, thoughtlessly, after being apprized of the ingredients. Shortly afterwards "*Swaim's Panacea*" came out in the newspapers in flaring capitals, with the certificates of the two distinguished professors, which also headed a large pamphlet filled with certificates of wonderful cures performed by it. At once the nostrum was received into popular favor, and the sales of it soon became enormous. It was even exported in large quantities to the West Indies, South America and Europe. Swaim, who had learned to write his name in order to affix it to his labels, made a splendid fortune, and built himself a palatial residence on Chestnut street. Both he and his distinguished endorsers have gone to their long rest—he exultant with triumph, the professors annoyed to the last by chagrin.

When I was a student, and a junior member of the Philadelphia Medical Society, a committee of that Society prepared and published an account of the quack medicines then in vogue. An analysis of Swaim's Panacea showed the presence of corrosive sublimate. About the same time a child died soon after taking a dose of "Panacea," apparently from poisoning. It was in evidence that Swaim had been in the practice of obtaining from an apothecary a large number of powders of corrosive sublimate, and the inference was that they were added to the bottles of medicine, and that the child who had taken the first dose from a bottle, had swallowed the quantity intended for the whole bottle. These things having been made public, Swaim went before a notary and swore that his medicine contained no mercury, and appended the declaration to his labels from that time onward.

Swaim had a son who was my class-mate in the dissecting-room. He was a youth of good parts and fond of study. Whether he grad-

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uated or not, I am not informed. But his father's design in giving him a medical education was to qualify him for greater efficiency in the panacea trade. The young man was accordingly diverted from the honorable pursuit of medical science, and buried ignominiously in the slough of quackery.

Some thirty years ago there lived in the southern part of New Jersey a mechanic or laboring man who suffered a long time from chronic diarrhœa. He was cured at last by a prescription obtained from a physician residing, I think, at Port Elizabeth. He removed to Philadelphia and transformed himself into a doctor more promptly and more economically even than doctors are wont to be made by the bastard manufactory of the man called Dr. Buchanan. And so "Dr. Jayne" and his "Carminative Balsam" had their birth. By the foolishness of advertising the Carminative Balsam became a success. The name of Jayne acquired value as capital in trade, and was used to give currency to vermifuges, expectorants, and other preparations. And thus did the obscure and ignorant farm-hand become a doctor and a millionaire, not so much by his brains as by the accident of a bowel complaint.

If the charlatan be an ignoramus, he must employ some one to run the literary department—to write up advertisements and certificates of cure. The imagination of an adroit liar is capable of supplying the certificates. These require a professional varnish, however, and for this purpose it is customary to hire some thread-bare doctor—some child of genius and misfortune who has fallen by the wayside in the battle of life, and who sells his soul to save his body from starvation.

The "natural bone-setters" are a curious variety of the human race. They possess by nature the gift of bone-setting, handed down from the seventh son of the seventh son, or some equally valid inheritance. It was my good fortune, just after taking my degree in medicine, to fall in with "Doctor Sweet," the great natural bone-setter of that period, and to enjoy a half day's clinic at his elbow. He had come all the way from Connecticut or New York, at the solicitation of some individuals of easy faith, to manipulate a lot of cripples in my native town; and I was glad of the opportunity to accompany him and witness his performances.

The story was that Sweet, when a boy, developed a remarkable passion for twisting and manipulating the joints of domestic animals, and that he became expert in dislocating and replacing them. All the fowls, cats, dogs and pigs on his father's farm were the subjects of his daily experimentation—that is to say, of the exercise of his special "gift." With this education and experience he turned his attention to the halt and lame of his own species, just as the Preissnitz inn-keeper, a few years later, after long training in the curing of sick horses, transterred his treatment to men and founded Hydropathy. In every trouble about the joints, Sweet perceived or imagined displacement of the bones. His treatment consisted essentially in manipulation, which was sometimes preceded by frictions with a stimulating liniment. He would undertake any thing, from a gouty toe to a carious hip; know-

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plainly. Be tranquil, sir; your case is not desperate: but your blood is full of spermatozoa. Let me show you the danger, sir. (Here the artist draws on paper two parallel lines to represent a bloodvessel, and pencils a number of eels wriggling along endwise.) Now, sir, as long as the animalcules swim endwise there is no difficulty. They circulate all about the body without injury. But let one of them get crosswise, so, Don't you see the effect?—to obstruct the bloodvessel instantly? And then you drop dead, sir! This is one cause of so many sudden deaths. Be calm, sir; I don't wish to alarm you. But if you were to leave my office now, and some one were to come in presently and tell me that a man had fallen dead at the corner of Stockton street, I should know it was you," and so forth. "Well, doctor, can you cure me? and on what terms?" asks Mr. Shivers. "Certainly, sir, I have two methods. One is the more speedy, but very costly. It requires a medicine which is very expensive. It will cost you$500. The other is the more common method, and will cost $300." If the patient is sufficiently psychologized he pays down the money, if he has it. But if he begins to argue on finance, he is told to take time to consider, and to call again. The chances are largely in favor of his returning. In one instance the intended victim was on his way back with the money in his pocket, when he learned something that awakened his suspicion, and induced him to turn aside for the present and procure an examination of the urine by an honest professional man. The result was that the urine was found to be perfectly normal in every respect. In another instance, a patient having discovered the fraud after paying an enormous fee, demanded that the charlatan should refund it, and enforced the application successfully by a demonstration not altogether professional.

The Anatomical Museum is a foreign device, imported from London. It was first established in New York and Boston and then in San Francisco. When it was opened here, an attempt was made by the late Dr. Coit and myself to have it suppressed as an indecent exhibition. The case was investigated in one of the courts, and the jury was instructed to inspect it personally, by invitation of the proprietor. They were smitten by its charms, and reported it a school of virtue and of science; and it has been run from that day till now. It was not then known or suspected that it was merely a decoy for even worse purposes. The Boston branch was destroyed by the great fire in that city, and has been refused permission to rebuild.

A few years ago a certain healer of disease came down upon us like a divine presence, his feet "scarcely deigning to tread the earth" —in fact refusing to do so for less than $50 a visit. He advertised in the newspapers to such an extent that it was rumored that some of them had entered into partnership with him. His certificates of cure have never been equaled by any one save the man who calls himself Aborn. Van Ehrenburg had a brilliant yet brief career, and his flight was in the night time.

Our people have not forgotten the "King of Pain," who dashed through the State in a splendid vehicle with six white horses, scattering like autumn leaves his advertisements of aconite liniment, the vir-

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tue of which he had grown acquainted with by some accident. His knowledge of the materia medica was bounded by this one article, but he was an expert card-player and invested in gambling the proceeds of his speculation in human credulity. He traveled very fast and came to a miserable end through a greater "pain killer" than aconite.

Every phase or special dispensation of quackery finds a given portion of the community susceptible to its specific virus; and its popularity endures until the supply of material is exhausted. The itinerant charlatan luxuriates in new localities, and when his failures and blunders multiply, and his impostures are revealed, so as to overshadow his certificates and pretensions, he folds up his tent and steals away in silence to other pastures. Some run their course swiftly like cholera and small pox, soon consuming the appropriate material; others become chronic and are disposed to domesticate themselves like the "seven years' itch."

The types of the printer are made to do more pure, unadulterated falsehood, with a smaller portion of truth, in the service of quackery, than in any other department of their application. No person who embarks in the career of charlatanism, or who undertakes to push a nostrum, can have the least hope of success without first throwing away his conscience, and either at once by deliberate design, or slowly by insensible gradations, selling himself to the Father of Lies.

Perhaps I should not have left the peaceful fields of medical enquiry to make this foray upon the bandits of society, were it not for a personal grievance. Some twelve or fifteen years ago an individual, somewhere in the mining region, dropped his pick and shovel, and came to this city to practice medicine. His medical education was accomplished whilst the earth was making a single revolution on its axis. To-day he was John Fitzgibbon—to-morrow, "Doctor J. F. Gibbon;" and the transformation was rendered available by ornamenting the walls, and casks, and boxes throughout the city, with a handbill displaying a photograph of Esculapius, and announcing "Doctor Gibbon's Dispensary," for the cure of a certain class of diseases. At the same time the newpapers of the Pacific coast were stocked with the same advertisement. As I had been in practice here since 1850, and had two brothers also practicing medicine in other parts of the State, the name was well known; and the imitation, in fact the assumption of it, was too-bare-faced an imposture to admit of doubt as to the motive.

From that time to the present I have been the recipient, personally and by letter, of applications for "patent French safes," and for the means of producing abortion, and for the treatment of "weaknesses" and loathsome diseases,—applications made in the belief that I was the author of the filthy advertisements in question. Such things show how many persons there are in a community supposed to be intelligent, who are ignorant that the advertising of one's qualifications and cures is held to be dishonorable and disgraceful among all educated and respectable physicians; and that it is invariably a mark of incompetency or of fraudulent design, frequently of both. They also serve

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to illustrate the extreme loathsomeness of the business carried on by advertisers in general, and its hostility to the physical and moral interests of its dupes and victims.

The relation of this system of advertising to the practice of criminal abortion is no trifling matter. Advertisers generally manage to convey covertly to parties concerned, the intimation of their readiness to perpetrate this crime. They talk of removing female obstructions, and so forth, or they resort to the trick of advising pregnant women *not* to take their medicines; and though the purport of such publications is well known, yet there are few conductors of newspapers who refuse to print and circulate them, and thus to make themselves accomplices. Thus advertisers and editors are in the daily practice of doing under cover, but knowingly, what would be felony if done openly.

Under the head of "Homœopathic Specifics," advertised extensively, there stands one item distinguished from the rest by its double price, and designated as requiring great care in its administration. And yet this cloven-footed collection of "specifics" is sold by our apothecaries in general.

I will not say that advertisers are all abortionists, but I do say that when men calling themselves "doctors," go into the advertising business, they identify themselves with impostors and abortionists, and have no claim on the respect or confidence of society. They throw their reputation on the market and sell it for gold. Their conduct demonstrates that, if they are not abortionists, it is only because the pay is less in that direction.

Certificates of cure with which charlatans bait their hooks are the weakest and most fallacious of human evidence. Never was there a pretender so ignorant or a medicine so vile or so inert, that could not accumulate thousands of cures, from hypochondriacs, feeble-minded people, charity patients, and accommodating friends, to say nothing of downright forgery, which produces most of the published certificates.

In the concoction of the various kinds of "Bitters," there is but little else than fraud. Nothing so much as a vegetable bitter disguises the quality of inferior spirits; and nothing so much as alcohol, good or bad in quality, disguises the nature of a vegetable bitter. The veriest fool can manufacture medicinal "Bitters,"—an experiment which has been successfully tried again and again. Nature has been lavish in her distribution of bitter plants. They abound everywhere. Many of them are harmless or positively tonic, and a small proportion only contain noxious qualities. Even the poisonous bitters, such as nux vomica, are bitter beyond proportion to their tonic properties. It is said one grain of strychnia will impart a perceptible bitter taste to a hogshead of water. In the early days of California, when the demand for "Bitters," exceeded the supply, some ingenious manipulator discovered that the "Man Root," or "Wild Cucumber," of our sand-hills (Megarrhiza Oregana,) could be made into pure Stoughton Bitters; and thirsty invalids without number drenched themselves innocently with this excellent Stoughton. And yet this root is highly

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acrid and really poisonous in large quantities. I have known death to result from its use, through intestinal inflammation. It grows to an enormous size in the sand-hills within the limits of the city, sometimes as large as a barrel. The name "Man-root," was given, no doubt, on account of its size and form. There is enough of it on the Pacific Coast to manufacture all the "Bitters" of every name, which goes down the throats of the population. The same might be said of the Yarrow, which is a wholesome bitter. Besides these we have Wormwood, Willow, Dogwood, Sneeze-weed (Helenium,) and others, abounding in all directions.

The most noxious, in fact the only noxious product of distillation, excepting always the alcohol itself, is Fusel Oil. It is difficult to separate Fusel Oil from distilled liquors, and its presence in large quantities injures their sale. Such liquors are economically applied to the manufacture of "Bitters." Indeed, there is no product of the still too vile to make "Bitters" of the first quality, in which the inferior and impure spirit is completely disguised. The process is admirably simple. Some child of toil, who has grown weary with wiping the sweat from his brow, buys a lot of the cheapest whisky which the market affords, and steeps in it one or more bitter herbs, which he finds at hand. He gives the concoction a distinctive name, and calls himself "Doctor," though he has never so much as held a doctor's stirrup, or blacked a doctor's boots. If he has a religious turn, so much the better; or if he is altogether knavish, it is none the worse. He proclaims himself the monopolist of a wonderful herb procured from the Modocs or Apaches, and distributes his dilute tinctures to such amiable fools as will give him certificates. Of superior value are the certificates of clergymen—many of whom are so innocent and credulous as to serve his purpose remarkably well. A few bottles sent to an editor will pay. Perhaps he can find some doctors who will permit him to immortalize them by publishing their names. The rest is plain sailing—thanks to types and newspapers. His fortune is made, and at the same time a large number of drunkards, who have trained on whisky under a false name.

Druggists have strong inducements to engage in the manufacture of "Bitters." Bitter herbs in great variety and quantity, are liable to accumulate on their hands. In making tinctures and other preparations, large amounts of dregs and refuse matters collect. These sources supply the bitter element, almost free of cost, and sufficient to impregnate immense quantities of alcoholic liquors to the proper standard of medicinal bitters.

The formula then, for medicinal bitters in general, runs thus: Take of cheapest whisky, an indefinite quantity; of any bitter vegetable, herb, flower, root or bark, q. s. Mix, and flavor with anything or nothing. Put in bottles and employ an expert liar to write labels and certificates. Present a few bottles to editors and clergymen of taste. Advertise largely and sell for five hundred per cent. above cost of material.

This subject is highly important in its moral relations. Medicated bitters are not used like ordinary medicines, in occasional doses. They

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are repeated day after day, habitually. Composed, as they are essentially, of alcohol, they lead directly, and often irresistibly, to intemperance. The entire spawn of medicinal "Bitters" are little more than lures to drunkenness. It is surprising that respectable apothecaries sell and distribute them—more surprising still that they originate and invent them. The traffic in medicated "Bitters" is a fraud and a nuisance, calling for legal restraint.

A number of years ago, an individual coming overland with a company to California, served as cook for the company, and was styled "doctor" on that account. He settled in Calaveras County and labored as a miner, without much success. His attention was then turned to the medicinal qualities of the herbs growing about him, and he came to San Francisco with the idea of making and vending a preparation to be called "Indian Vegetable Bitters," and to contain no alcohol. He fell in with an enterprising druggist of this city, who saw money in the project and embarked in it. At the suggestion of the latter, the "Indian" was struck out, and as the new medicine got sour by fermentation, it was concluded to call it "Vinegar Bitters," and to identify it with the movement against alcoholic drinks. The mountain herbs were thrust aside, and aloes, being a cheap bitter, was substituted. "Nine sick people out of ten," said the druggist, "will be cured by purging." Wherefore the aloes. So the cook became doctor, and the decoction became sour, and "Doctor Walker's Vinegar Bitters" began their career in the newspapers.

At that juncture, I one day opened a new number of the "*Pacific Medical and Surgical Journal*," of which I was editor, and found to my amazement and mortification, a full page advertisement of this nostrum, with all its pretensions duly set forth. The advertisement had been sent to the printing office and inserted without my knowledge. It did not appear again.

A year or more afterwards, a medical gentleman of St. Louis wrote to me inquiring if I had ever endorsed the nostrum, and stating that every bottle of it distributed in the valley of the Mississippi bore my recommendation. The good "Doctor" Walker, or an equally conscientious coadjutor, had copied from the discarded advertisement his own statement of the virtues of the "Bitters," and credited to me as the editor of the *Journal!* If the traffic in nostrums is thus capable of developing fraud and forgery in men of moral and religious character, to what extremes of depravity must it reduce those who have no higher motive than worldly gain!

The truth is, the "Vinegar Bitters" is one of the vilest, if not the very vilest, of all the concoctions in the market; and it is rendered more repulsive and obnoxious by concealing its poison with the mask of temperance. That it contains alcohol there is no doubt. Even if the dregs from the tincture bottles are not appropriated in its manufacture, the fermentation which it undergoes produces alcohol. Its harsh and drastic properties have given rise to serious injury in many instances within the knowledge of myself and others. I am cognizant of the instance of a man who contracted a habit of using it so as to consume a bottle in a day. The result was an attack of acute mania

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for which he was sent to Stockton. He recovered in a short time, and is now living in San Francisco to tell the story, but not to illustrate it by drinking "temperance bitters."

Is there no way of protecting society against the array of impostors and impostures which prey on health and life? It is not my purpose to answer this question, nor would it be proper to prolong this article. Various expedients have been proposed—such as prohibiting the practice of medicine or the assumption of the title of doctor without a diploma; requiring all proprietary or patent medicines to have their ingredients printed on the label, and so forth. Hitherto laws for the suppression of quackery have done but little good—at least in America. It is difficult to enforce them, and any attempt to do so on the part of physicians is attributed to sordid motives. But the people, not the medical faculty, have need of the protection. Quacks and quack medicines increase the demand for regular treatment, by creating disease and by training the minds of people to morbid action and their bodies to perpetual dosing. They manure the soil for the growth and accumulation of morbid products. If legislatures determine to interpose the shield of law for the protection of their constituents, certainly we shall not object. But law, alone, is impotent. The evil is too deeply rooted for that remedy. I have more hope of success against the nostrum deluge through an infusion of conscience into the "middle-men"—the druggists and apothecaries who stand between the fountain and its distribution, and irrigate the community with the poisonous flood. By their associations, publications and colleges, our pharmacists are fast elevating their business above the standard of the beer-shop, and before long it will be as disreputable for an apothecary to deal in "Bitters" and other nostrums as to sell grog. But the advertising quacks and impostors are more difficult to manage. Arrayed on their side are the ignorance, prejudice, credulity, and other base elements of character in the common people, and above all the annual subsidy of ten millions of dollars, which enables them to purchase and control the periodical press of America.—*Pacific Med. and Surg. Journal.*

AN AMUSING CHEMICAL EXPERIMENT.

Place five glasses in a row; pour into the first a solution of caustic potassa, into the second a solution of corrosive sublimate, into the third a small quantity of iodide of potassium and some oxalate of ammonium, into the fourth a solution of chloride of calcium, and into the fifth some sulphide of ammonium. Now pour the contents of the first glass into the second, and a scarlet color will be obtained; next pour the second into the third, and the mixture will be colorless; again pour the third into the fourth, and the contents will be white; finally pour the fourth into the fifth, and the mass will be a dense black. Then you will have had two glasses colorless, one scarlet, one white, and one black.

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TRANSACTIONS OF PHARMACAL COLLEGES AND SOCIETIES.

AMERICAN PHARMACEUTICAL ASSOCIATION.

The twenty-second annual meeting of the American Pharmaceutical Association, will convene in the city of Louisville, Kentucky, on the second Tuesday, 8th of September, 1874. The first session will open at 3 P. M.

Those desiring information concerning the meeting or on business pertaining thereto, should address the permanent Secretary, Prof. John M. Maisch, 145 North Tenth Street, Philadelphia, Pa. The Local Secretary, Mr. Emil Scheffer, of Louisville, will render the necessary assistance in connection with the exhibition or other local arrangements. The officers of the Association will as far as possible provide every convenience for those desiring to participate in the deliberations, also those who exhibit articles of Pharmaceutical interest. In order that the meeting may be a success, I would urge each member to give all possible assistance in furthering the objects of the Association. It is unnecessary at this time to explain its objects, or the good already achieved; these are facts well known to all who are practically or scientifically interested, in the promotion of Pharmacy. Those who are not so informed I would refer to its constitution and annual proceedings. From a bright star of the Pharmaceutical firmament in 1852, the Association has grown to an effulgent sun of intellectual light, its diverging rays with increasing splendor permeating every part of this vast country. The various standing committees, representing every phase of interest connected with the trade and profession of Pharmacy, will bring forward a valuable store of well digested information, whilst the exhibition department so attractive in the past, promises to be unusually large and interesting this year. The many advantages accruing to members, especially those who attend the annual gatherings, the proceedings of which are published in book form, being faithfully recorded facts in the progress of Pharmacy, and its allied sciences are essential to every well regulated pharmaceutical library, and in money value being more than equal to the annual dues, should induce every pharmacist and druggist who feels a pride in his vocation to apply for membership. Copies of the constitution, by-laws, and blank applications for membership, will be furnished by Prof. Maisch to those who apply for them.

The experiment of electing where the annual meetings shall be held, regardless of invitations from local organizations, to judge by the results of the last two meetings is a success, and promises greater usefulness to the Association in the future, by relieving local members from any obligations to give unnecessary attention to visiting members. The good influence of last year's meeting in the South; the large increase of southern members; the very hospitable manner in which the Association was received and entertained by the pharmacists, druggists and municipal authorities of Richmond; the subsequent organization of the Richmond Pharmaceutical Association, which

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doubtless to some extent was influenced by this Association, are pleasant remembrances to those who were fortunate enough to be present.

I sincerely hope that equally good results may attend the meeting this year in the southwest.

All who are interested in the advancement of Pharmacy are hereby invited to attend, and to place on exhibition any articles of interest relating to the objects of the meeting. In short, the meetings are pleasant and profitable to the overworked pharmacists, socially and intellectually, whilst they promote the general health and extend professional and business enterprise.

Yours Respectfully,

Baltimore, July, 1874. JOHN F. HANCOCK, *President.*

"*Concordia soll ihr name sein.*"

THE BRITISH PHARMACEUTICAL CONFERENCE.

The eleventh annual assembly of the members of the British Pharmaceutical Conference, an organization for the encouragement of Pharmaceutical research and the promotion of friendly intercourse among Pharmacists, will be held in London on the 5th, 6th, 7th, and 8th of August, 1874, under the Presidency of Mr. Thomas B. Groves, F. C. S., of Weymouth. By the kind permission of the Council of the Pharmaceutical Society of Great Britain, the meetings will take place in the house of that Society, 17 Bloomsbury Square, London.

The reading and discussion of reports and papers will be taken on Thursday, the 6th of August, and Friday, the 7th; hours 10 to 12.30, and 2 to 4.30 each day. On the evening of Wednesday, the 5th of August, these meetings will be inaugurated by a conversazione, to be given by the Pharmaceutical Society, through its Council, to the members of the Parmaceutical Conference. On Thursday evening the members of the Conference will hold their annual dinner, and on Saturday, August 8th, the London members and their friends invite the Provincial members to an excursion down the picturesque valley of the Thames, between Marlow and Maidenhead.

EXHIBITION OF OBJECTS RELATING TO PHARMACY.

The Local Committee, with the view of increasing the interest in the gathering, propose that an exhibition of objects relating to Pharmacy shall be held in the Pharmaceutical Society's Rooms, on Wednesday, Thursday, Friday, and Saturday the 5th, 6th, 7th and 8th of August. The Exhibition will also form a prominent feature of the Conversazione on Wednesday evening, August 5th.

The Committee invite contributions in one or more of the following classes:—

CLASS 1. Objects representing novelties or improvements in Pharmaceutical processes, including apparatus.

CLASS 2. Medicines (Simple and Compound), Drugs and Chemi-

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cals, including new preparations, and new forms of old preparations; also specimens, etc., illustrating the subject of "Adulteration."

CLASS 3. The General Appliances and Fittings of a Pharmacy or Store; Dietetics and Miscellanea, including models, drawings, engravings, paintings, books, historical relics, etc.

PROFESSOR ATTFIELD,
17 Bloomsbury Square, London, W. C.
MR. F. BADEN BENGER,
7 Exchange Street, Manchester.
Honorary General Secretaries.

MARYLAND COLLEGE OF PHARMACY.

A regular meeting of the Maryland College Pharmacy was held July 9th, 2½ P. M. President Hancock in the chair. The Treasurer's report was a satisfactory statement of financial condition of the College. Mr. L. Dursse, of Grafton, West Va., exhibited a non-wasting glass percolator, for which he has letters patent. The President's annual address was an instructive paper, it was referred with accompanying suggestions to the Board of Trustees. An election for officers resulted in re-election of present incumbents, viz.: Jno. F. Hancock, president; Dr. Edward Eareckson, secretary; J. Brown Baxley, treasurer; L. Dohme, board of examiners. The following members were elected delegates to the 22d annual meeting A. P. A.: Prof. J. F. Moore, chairman, Jno. F. Hancock, Louis Dohme, F. Hassencamp and J. Newport Potts. The alternates were, Messrs. Jennings, Roberts, Sharp, Webb and Monsarat. Messrs. Moore, Dohme and Roberts being delegated to the convention of Teaching Colleges.

J. NEWPORT POTTS, *Reporter.*

EDITORIAL.

MEETING OF THE AMERICAN PHARMACEUTICAL ASSOCIATION.

For some unaccountable cause, the President's notice of the 22nd annual meeting of the A. P. A., did not reach us in due time, thereby delaying the issue of this journal several days. The 8th day of September, and the city of Louisville, Ky., are the time and place for the next gathering of the members of the Pharmacal profession of this country. All that it requires to make the meeting a great success is that we have a large attendance from the different sections of the country, to this so very accessible city of the Southwest.

Though the Association in choosing this city for its 22nd annual meeting, did so without a previous invitation from the resident Pharmacists, this need not produce any misgivings regarding the welcome awaiting the Association. We have learned through private sources that the preparations made to receive and entertain the visiting members, will be of such a character as will compare favorably if not surpass all former

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hospitalities, extended to this Association on previous occasions. To see the "latent" goodness of the pharmacist in its proper light, take him away from the every day routine life of his shop, and bring him in contact with his fellow-laborers, when reticence and restraint will be cast aside, and his big heart which has been pent up for a time will swell with joy in meeting his friends and brethren of the profession. Therefore let us lay aside for a few days the implements of toil and care, hasten to the rendezvous, and grasp the outstretched hands of welcome of our friends and colaborers, and in each others company enjoy that pleasure which can only be conveyed by the mutual interchange of thought and sentiment.

PHARMACY IN MEDICAL COLLEGES.

Prof. George F. H. Markoe, of the Mass. College of Pharmacy has received the appointment of instructor of Pharmacy and Materia Medica, in the medical department of Harvard University. The appointment of a pharmacist to instruct medical students in a medical college is certainly wise and judicious, as he is the most qualified by practical experience to teach this branch of the healing art. As long as this theoretical instruction is only considered as a part of the information necessary to the physician in his vocation of treating disease, whereby he can prescribe the proper remedies intelligently, just so long do we approve of this addition to the course of instruction in medical colleges.

There exists to some extent in the mind of the medical profession of this country, the very erroneous impression that its members are as a rule, qualified to assume the duties, and practice the art of pharmacy.

This qualification we most emphatically deny, as it is not possible to obtain the proficiency of a pharmacist without having undergone a practical training in a dispensing shop.

It has become the by-word of the young medical "fledgling," who, by some hook or crook, has squeezed through the routine examination of one of the numerous medical schools of this country, and has been dubbed an M. D., that should he not succeed at the start in getting into practice, he will start a drug store, make some money, and at some future time take up the practice of medicine.

Now we must say that in an experience of over twenty years in the drug business, we have always, with but few exceptions, found this class of M. D. pharmacists, (although their claim to the knowledge requisite for the business is usually the most pretentious), the most ignorant and most dangerous element in the drug business, and the pharmacal profession at large, has often had to suffer by the iniquities practiced upon the public by these pretenders.

Therefore we would impress teachers of pharmacy in medical colleges, with the importance of correcting as much as lays in their power, the existing erroneous impression prevailing among medical students, that a medical curriculum of instruction does embrace a knowledge of pharmacy to that degree which will qualify them to practice it properly.

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"ILLUSTRATIONS OF THE LITERATURE OF QUACKERY,"

Is the title of an article we publish in this number, and to which we call the attention of our readers, so that they may view the topic through the spectacles of a medical editor, teacher and practitioner. As far as Dr. Gibbons has "illustrated" the subject, just so far it is good and truthful, but we sincerely regret that so fearless and able a writer as the author of this essay, should have omitted mentioning the part the medical profession and its press play in the drama of Quackery.

We claim that the medical profession of this country is to a great extent responsible for the existing evil, and to substantiate our charge, we will enumerate, first, the prescribing of nostrums by the medical profession, the composition of which they have not the remotest knowledge of; secondly, the giving of certificates of merit to the manufacturers of nostrums; thirdly, that the medical press of this country, with but few laudable exceptions, assist the use and sale of nostrums by inserting into the pages of the reading matter, (styling it usually selected matter), month after month, cases of diseases which have been successfully treated by the use of this or that nostrum. These cases are written up by some "medical hireling," in the employ of these nostrum compounders, and the medical journals receive a money consideration for their insertion.

To prove the first charge we have made, it is only necessary to consult the prescription file of any dispensing pharmacy, where can be found prescriptions from regular graduated physicians, for such nostrums as McMunn's Elixir of Opium, Bromo Chloralum, Elixir Iodo Bromide of Calcium Compound, Cincho-Quinine, etc.

Secondly, on examining the wrappers attached to these nostrums, the names of physicians will be found endorsing the merits and the composition, the latter of which they are certainly ignorant of.

Thirdly, the medical press of this country has become with *few* honorable exceptions, the aider and abettor of this species of fraud, by inserting among the reading matter, paid "puffs," which seem to the uninitiated medical practitioner as *bona fide* reported cases of disease, successfully combatted by the means of this or that nostrum, when in reality it is written up by the man "Friday" of the nostrum houses, and by them sent to the different medical journals from month to month, paying a consideration for each insertion.

That this aiding of Quackery is not confined to the "little fish" of the profession, we will prove by refering to the present President of the American Medical Association, Wm. Bowling, M. D., of Nashville, Tenn., who is editor and proprietor of the Nashville *Journal of Medicine and Surgery*, late President of the meeting of American Medical Editors, and Emeritus Professor of the Theory and Practice of Medicine, in the Medical Department of the University of Nashville.

This gentleman whom we have alluded to as holding these different prominent positions in the medical profession, inserted in the June number of his Journal a "puff" for the well known nostrum Cincho-Quinine.

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For this insertion he received no doubt the usual compensation from the manufacturers of this nostrum. Now we ask what prompts men in such positions to sell themselves for such base purposes? It is certainly unprofessional, and cannot be styled honorable for one who professes to be a leader of the science of medicine, and be guilty of such an offense against its progress.

Dr. Bowling and other editorial colleagues, who are guilty of this transgression, certainly cannot claim ignorance on this subject. How does this agree with Dr. Bowling's questions on professional ethics, published in his journal for July? Did the Doctor in his annual address as President of the American Medical Editor's Association, touch upon the subject of advertising nostrums by the medical press? The address is said to have been both "suggestive and timely," or did it only refer to the more important medical topic, "Katy did, and Katy didn't." Come Doctor, step to the front, tell your readers you have been "naughty" for "filthy lucre's" sake, and you have thought the matter all over, and promise for the future to mend your evil ways. It shall not be said that Dr. Bowling "*knew the right, yet still the wrong pursued.*"

THE LATE FIRE.

Another disastrous conflagration has visited Chicago, which, were it not compared with "the great fire," would be considered immense. This time it came in broad daylight, in the middle of the afternoon of the 14th ult., and though the fire department was promptly on hand, the extremely combustible material, rendered doubly so by a stiff southwest breeze, soon gave the fire such a start that it was thenceforth utterly unmanageable until it had swept through more than half a mile of State street, and got into the just rebuilt part of the city, taking three hotels, the post office, and several large churches, besides many handsome residences. Four drug stores were included in the destruction, and several others had narrow escapes. Those burned were: Chas. C. Fredigke, 472 State street; Weber & Luckhardt, 426 State street; J. W. Ehrman, 387 State street; and Wm. Bodeman, 283 State street. The office of the PHARMACIST was in great danger at the early stage of the fire, but we were spared a third fiery ordeal in as many years.

SCIENCE AND SPIRITS.—Regulations have been issued from the Treasury Department for the withdrawal of alcohol from bond for scientific purposes, under the act approved February 21, 1873. They require that when alcohol is to be withdrawn from bond under the provisions of the act, the president or curator of the institution in which the same is to be used will make, through the Collector of Internal Revenue of the district in which the alcohol is located, a written application to the Secretary of the Treasury for a permit to

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withdraw such alcohol, and will state in his application the name and location of the institution in which the same is to be used, and furnish, either in or accompanying the application, evidence that the institution named is a corporated or chartered scientific institution or college of learning. The application will also state the number of packages to be withdrawn, the wine gallons, degree of proof, and proof gallons in each package as per original guage, the serial number of the package and warehouse stamp of date of entry into warehouse, by whom distilled, and for what particular purpose the alcohol is to be used. Such application is to be sworn to or affirmed before an officer authorized to administer oaths. Said president shall make and execute a bond, signed by himself as principal and with two more sureties, who shall not be officers of the institution in which the alcohol is to be used, but shall be residents of the judicial district in which such institution is located,conditioned that the whole quantity of alcohol so withdrawn shall be used for the purpose of preserving specimens of anatomy, physiology or natural history belonging to the institution, or for use in the chemical labratory of such institution, and for no other purpose. After proper bonds and forms which are included in these regulations are complied with, proper permits are to be given for the withdrawal of alcohol without the payment of tax, and, the collectors and storekeepers being duly notified, the Collector of Internal Revenue will take credit for the alcohol so withdrawn by a special entry on his bonded account for the month during which such withdrawal is made, and stating in the entry that the alcohol was withdrawn under the permit of the Secretary of the Treasury without the payment of tax, in accordance with the provisions of the act approved February 21, 1873, and will forward the permit with his bonded account as a voucher for such credit.

REVIEWS AND BOOK NOTICES.

Medical Literature of Kentucky, by Lunsford P. Yandell. Louisville, Ky., 1874.

The Problems and Future of Pharmacy in Germany, by Frederick Hoffman, Ph. D., New York City. Reprinted from the *American Journal of Pharmacy*, July, 1874.

This essay should be read by every pharmacist who has the future welfare of the profession in this country at heart.

The American Journal of the Medical Sciences, for the quarter ending July 1st, 1874. Edited by Isaac Hays, M. D. Published by Henry C. Lea, Philadelphia.

Half Yearly Compendium of Medical Science, edited by D. G. Brinton. Part xiv., July, 1874. Philadelphia.

On Phosphoretted Oil, by Dr. G. Méhu, pharmacist in chief at the Necker-Hospital in Paris.

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This essay which is a reprint from the *Journal de Pharmacie et de Chemie*, 1866, settles beyond all doubt that the priority of publication belongs to Dr. Méhu, and the essay of Dr. Saml. R. Percy, presented at the meeting of the American Medical Association, 1872, has as appears at present, the appearance of plagiarism.

A Treatise on Food and Dietetics, physiologically and therapeutically considered, by F. W. Pavy, M. D., F. R. S., Fellow of the Royal College of Physicians, Physician to, and Lecturer on Physiology at Guy's Hospital. Philadelphia: Henry C. Lea, 1874; pp. 5740. For sale by Jansen, McClurg & Co., 117 and 119 State Street, Chicago.

We quote from the preface to indicate the impoitance of the subject treated: "From the fact that the subject of Food is one of deep concern, both to the healthy and the sick; and that the information which has been obtained during the last few years has completely revolutionized some of the cardinal scientific notions formerly entertained; and that no modern systematic treatise of the kind here presented exists in the English language, I have been encouraged to think that the task I have undertaken may not be deemed superflous."

A Practical Treatise on the Surgical Diseases of the Genito-Urinary Organs. including Syphilis. Designed as a manual for students and practitioners, by W. H. VanBuren, A. M., M. D., Professor of the Principles of Surgery, with Diseases of the Genito-Urinary System and Clinical Surgery, in Bellevue Hospital Medical College, etc., and E. L. Keyes, A. M., M. D., Professor of Dermatology in Bellevue Hospital Medical College, etc. New York: D. Appleton & Co., 1874. For sale by Hadley Bros., Chicago.

This volume of 672 pages, is one of the most interesting and instructive works upon this subject we have ever met with. That so large a volume of so interesting and useful information, could have been written upon this class of diseases, is not surprising when we take into consideration who are its authors. Although the work is nearly altogether written by the junior author, it bears the imprint of the practical and long experience of Dr. VanBuren in this class of diseases, and his lecture notes as well as his record of cases have been largely used in compiling the work. The publisher has done his part of the work well, and take it altogether this volume should not be found wanting in the medical library of any practitioner of medicine.

The Laboratory, **a Monthly Journal of Chemistry, Pharmacy, etc., Published by Wm. Bartlett & Co., Boston, Mass. Edited by Jas. F. Babcock. July, No. 1, Vol. 1.**

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ing that success in one case out of fifty would establish and sustain his reputation. Here is the difference between the physician and the charlatan—the former being judged by his failures, the latter by his successes.

One of the patients on whom I saw him operate was an Irish gentleman, with sub-acute rheumatism of one arm, every joint from the shoulder to the extremities of the fingers being stiffened and painfully sensitive. He began with the shoulder, twisting and turning the inflamed joint forcibly in all directions, remarking—"I will soon fix it for you."

"Doctor," I enquired, "do you consider that joint dislocated?"

"No, it is shot," was the answer.

"You mean it is out of joint?"

"No, I mean no such thing. It is shot."

"Well, you mean to say the bones are not exactly in place."

"I mean just what I say, the jynt is shot."

And that was the only idea of his pathology that I could gather. From the shoulder he proceeded downwards, using the same forcible movements with each joint. Reaching the fingers, he planted his thumb in the palmar surface of every articulation and bent the joint with violence, the poor patient roaring with agony at each successive operation, and begging piteously that the delicate process be suspended long enough for him to swallow a glass of brandy. It is needless to say that injury, not benefit, followed such treatment.

Sweet was extremely ignorant, and purposely so. He knew that success in a man of no education would dazzle the vulgar; and he knew also that the term *vulgar*, in that application of it, includes people generally. He intended that his "gift" should sparkle like a diamond in a dung-hill. His pathology was embraced in the one word, "shot;" and his therapeutics in the one word "fix." He often fixed a greater number of bones than are counted in osteology. A medical student who was present on the occasion referred to, now Dr. R. R. Porter, of Delaware, asked him if he had ever examined a skeleton. He did not know the meaning of the word, but exclaimed, after a repetition of the enquiry, "Oh! you mean an *anotomy*. I seen one once but did not examine it. I had no occasion to do so. I don't want to *know* any thing about the bones. It might interfere with my gift."

Old Californians will remember "Doctor Young," the pioneer quack of the Pacific Coast. He was an upholsterer and nothing more, until his sudden transformation into a doctor, which required but a single night. He flashed into fame and into business through the institution which graduates nearly all the quacks in the world—the newspaper press.

There was a vein of honesty in Young's character. Realizing his own inability to treat disease, he prescribed by proxy. Of this I was first apprised by the following incident. Being called in consultation in the case of a sick child, late in the evening, it became necessary to appoint an hour for another meeting with the attending physician on the day following. That gentleman was a well educated medical

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man, but unfortunately he had been ensnared and shorn of his locks by the Circé of our profession. He could meet me only before eight in the morning and after six in the evening. I was much surprised by this announcement, until he explained the reason. "I am ashamed to own it," said he, "but I am in the service of Dr. Young. I have a family and I could not see them starve. My professional pride is humbled by the position, but the case is one of necessity. Young never prescribes for his patients. He sits at the desk in the reception room and arranges and receives the fees, and then refers them to me, in the private office. I pass for the Doctor, and Young for my clerk. He pays me $250 a month, and my time is his exclusively, from 8 A. M. till 6 P. M."

Both these individuals have long since gone to their graves. But "Doctor Young's Institute" still lives, and his name is still employed to attract persons who are fond of certain flavors.

Twenty years ago, there was a shop-boy in a dispensary in this city, who performed the duties of his office for the moderate compensation of $40 a month. He was of European birth, well educated and of pleasant manners, attentive to business and economical. He withdrew amicably from the service of his employer, and investing his savings in the press, he came forth one morning as a newspaper graduate, a full-fledged physician and surgeon, of infinite celebrity and experience in Europe. He was the most adroit and gentlemanly of our California charlatans, and perhaps the best qualified and the most successful. Some time after his debut he announced himself as a graduate of a regular Philadelphia school. Regarding this as impossible, I wrote to the dean of the school for information, and learned that it was really so, and that he had obtained an ***ad eundem*** degree by exhibiting testimonials of the highest order from medical schools in Europe. The mystery was subsequently explained by the discovery that he had a brother in Philadelphia whose testimonials he had borrowed and whose character he had assumed. His career was brilliant and lucrative. In the list of treasure shipments published at the departure of the steamers, his name always appeared as a large shipper. It was ascertained however that he was in the practice of paying other shippers to enter their remittances in his name.

Thus "by hook and by crook" did he accumulate a fortune sufficient to warrant him in retiring from business. Shaking from his feet the dust of quackery, he mounted to a respectable position in society, and now enjoys his *otium cum dignitate*, unmoved by needless contemplation of the hole of the pit from whence he was digged.

A smart young man, with a Hibernian name, made a snug little sum of money nearly twenty years ago, as a newspaper carrier in this city. His occupation taught him how doctors might be made by an instantaneous process; and he was carried by his newspapers into the doctorate in a single night, and became possessed of extensive knowledge and experience in medicine, without reading, study or practice.

In former years a man named Jones held forth in Washington Street, as the author and vendor of a "Lucina Cordial," which would strengthen the nerves, impart sexual vigor and cure all irregularities

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of females. This man sent for me to prescribe for his wife. Her case, as represented both by her and by himself, was so exactly that for which the "Cordial" was advertised as an infallible cure, that I could not avoid asking him if he had tried it on her. He answered, with a significant movement of one eye, "I don't give that in my own family."

In California, as in all other parts of the world, there are "Worm Doctors." Some man of stomach becomes a victim of parasites, and is made acquainted through a medical prescription with the virtues of Male Fern—the insecticide mostly employed by these worms-killers. Forthwith he gathers up all the tape-worms and other entozoic prodigies which cats, dogs and human beings can supply, displays them in his window, and talks and writes tape-worm, knowing that a large per centage of men and women who see and read will be converted and will come for his medicines. On this hobby has many a perfect ignoramus crawled into celebrity and affluence.

There is an old story of two fellows who embarked in a speculation in itch-ointment. One of them had the disease, and traveled through the country shaking hands most affectionately with everybody. The other, who had the ointment, followed in a week or two selling the cure. A game something like this belongs to the art of quackery. The first step is to *make* patients, and this can be done by getting people to read about disease. Pamphlets, almanacs, newspapers, distribute the infection. It requires but little knowledge of human nature to discover that reading of diseases causes persons to fancy themselves sick, and sometimes even makes them sick. Medical students are frequently surprised and alarmed, when they begin the study of pathology, to find that they are the victims of the disease under investigation. Even a long course of practice, whilst it fortifies some against morbid mental impressions, renders others sensitive to their own trifling ailments, which their fancy magnifies into dangerous maladies.

The weakest part of a man's body in this respect is the sexual apparatus. It is the easiest thing in the world to convince a man who has ever been diseased in these organs that the disease is still in his system, or to convince him that he is suffering, or will suffer, from indiscretions, however trifling, of his former life. Here are the two cords on which charlatans play with terrific success—private disease and seminal weakness. In this city, as in every large city in the world, there are at any given time hundreds if not thousands of men, who have been startled from their daily labors in the mines and fields and work-shops by reading the well-devised, sensational advertisements which pollute the columns of almost every newspaper. Gathering up their hard earnings, they hie them away to the city and rush into the trap. Their fears are realized; their apprehensions are promoted, and a cure is guaranteed for a fee in advance. Once in the toils, their course is onward and downward, forever. Without employment, they spend their time traveling to and from the pool of infection; brooding over their thousand sufferings, fancied and real; perusing the poison literature of quackery; giving and receiving

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increased trouble by comparing notes with the other sufferers like themselves: until, their last dollar and their last hope gone, they lie down to die in a public hospital, or spend their last days in gibbering idiocy.

It is a great mistake to suppose that quackery is a plant which grows only on the miry soil of ignorance. On the contrary, many of the most mendacious and successful quacks are well educated men and graduates of medical institutions; and many of the best patrons of such impostors belong to the polite circle of society. There is, in this respect, an attraction of opposites—a sort of polarity, which brings together elements the most antagonistic in their general character. We have seen in this city a semi-barbarian Asiatic, but little above a brute in intellect and knowledge, patronized by the families of intelligent merchants and bankers. And the most adroit and unprincipled charlatan, perhaps, who ever flourished on the Pacific coast, was a graduate of London.

It may be said to the credit of American graduates, notwithstanding the low standard of requirements so much complained of, that they seldom lose the sense of professional honor which attaches to their education. They are seldom guilty of high treason to the professional code. Of all the graduates of the California schools, now numbering upwards of one hundred, I do not know of one who has degenerated into an advertising quack. We are indebted to England and Ireland for most of our educated charlatans. Germany furnishes a few only, and a French quack is a rare animal.

"Anatomical Museums" as they are called, are advertisements which conceal their real purpose. A large collection in wax exhibits the effects of disease on the organs of generation in both sexes. There is enough of anatomy and pathology in the collection to impart a scientific flavor to the otherwise corrupting and disgusting exhibition. A lecture is embraced in the programme, and this lecture is cunningly framed for the purpose of seducing credulous and imaginative hearers into the belief that they are diseased, and thus drawing them into the toils.

Several years ago I published in the *Pacific Medical and Surgical Journal*, the description of an interview which a gentleman of this city had with the proprietor of the museum, and which I procured from his own lips. It was in substance as follows: "The patient is scarcely sick—does not know whether he is sick or well—has heard a lecture at the 'Anatomical Museum,' which is part of the plan, and which has started some apprehension in his mind. A fee of $5 or $10 secures a hearing. The urine must be examined while the patient waits. If he be a man of consequence in the community, the 'doctor' puts on large airs and keeps him waiting an hour or two, in the style of the Pontiff and Prince Henry. Finally, the strutting finished, and the impatient patient sufficiently impressed with the preliminary demonstrations, the mountebank sits at his side and proceeds solemnly, 'Now, Mr. Shivers, you must control your feelings and remain composed. I don't wish to alarm you, sir, but you are in a bad way. Your urine is full of animalcules. The microscope shows them

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THE PHARMACIST.

VOL. VII. CHICAGO, SEPTEMBER, 1874. No. 9.

COMMERCIAL ERGOTINE AND ITS IMPURITIES.

BY JAS. R. MERCEIN.

Having occasion to use a quantity of Bonjean's Ergotine in dispensing, I noticed that the article made in accordance with the suggestions of the U. S. Dispensatory, differed in general appearance from that sent out by Merck, of Darmstadt, and when heated with alcohol, acted so unlike the German extract, that I was convinced that they were not made in the same manner. When properly made, Bonjean's Ergotine should be readily dissolved by four or five times its weight of alcohol, leaving little or no sediment. Merck's Ergotine, labelled "Bonjean's," behaved so strangely when the spirit was added to it, that I suspected the presence of gummy and extractive matter in large proportion. Authorities differ as to the relative value of the constituents of Ergot soluble in water, with those which are obtained by an alcoholic process; but whatever may be the real source of its therapeutic effects, Ergotine as made by Bonjean's formula, should not and cannot, from its mode of preparation, contain even a trace of gum, starch or lignin. To verify the correctness of my surmise, I made three different trials, with as many different bottles of Merck's Ergotine, in the following manner: 200 grains were triturated thoroughly with 6 oz. of strong alcohol in successive portions. The moment the menstruum was added the mixture became turbid, and as the process went on, large quantities of a tenaceous gummy matter were thrown out, adhering strongly to the sides of the mortar. The whole mixture was then transferred to a tared filter, and after the liquid portion had passed through, the filter was thoroughly dried and weighed, with the annexed result:

EXPERIMENT 1.—200 grains Merck's Ergotine triturated with 6 ounces alcohol; residue insoluble in alcohol, 90 grains, or 45 per cent. of gum, &c., freely soluble in water.

EXPERIMENT 2.—Same as No. 1, with the exception that the residue weighed 92 grains, or 46 per cent. of gum, &c.

EXPERIMENT 3.—Same as No. 1, the residue weighing 120 grains, or 60 per cent. of gummy extractive insoluble in alcohol.

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Bonjean's Ergotine is directed to be made by precipitating the gum, albumen, lignin, &c., by adding a large excess of alcohol to the aqueous extract, decanting the clear liquid, and evaporating it to the proper consistence. In practice I have found it necessary to thoroughly triturate the aqueous extract in a large mortar with successive portions of alcohol, using three pints of this menstruum to each pound of Ergot, the process being very tedious and laborious. The amount of gum, &c., thrown out by these means will average about four ounces to each pound of Ergot used, while the Ergotine obtained from each pound is out ten drachms. If then, this gummy mass should be left in altogether, or only partly removed by the use of too little alcohol, it can readily be seen that the profit to the manufacturing chemist is proportionately greater, whatever may the effect upon the Ergotine's medicinal qualities. From the fact that the average proportion of gum, &c., to the alcoholic extract is about four to one, and that half of Merck's Ergotine as examined by me was insoluble in alcohol, it is probable that the impurity of the German product is owing to the imperfect precipitation of the aqueous extractive matter by the insufficient quantity of spirit used. This is no excuse however for the presence of such an adulteration, for Merck's name is a world-wide synonym for pure chemicals, and such a lapse as this is inexcusable.

With Ergot at an average cost of 40 cents a pound, and with an average yield of ten drachms of Bonjean's extract to each pound, the cost of production will be about 40 cents an ounce, while the wholesale selling price is 60 cents. In the face of such a small margin of profit to the manufacturer, the temptation to allow the gum and albumen to remain is very great, and I am inclined to think Merck has yielded. In these degenerate times the best of men will bear watching, and the sooner that pharmacists will give up the idea that *because* Brown, Jones and Robinson are manufacturing chemists, ergo, their products *must* be necessarily pure, the sooner they will be forced, as a natural sequence, to examine more closely the chemicals they buy of the aforesaid Jones & Co.; they may even be persuaded to make for themselves many of these same articles they now procure from others.

Jersey City, N. J., August, 1874.

COMMERCIAL RESIN OF GUAIAC.

BY L. C. HOGAN.

Resin of Guaiac unavoidably contains a small per cent. of impurities, and is so stated by the U. S. Dispensatory in its description of this drug. The question naturally arises what is a small per cent? To this query I take the liberty of calling the attention of the profession, as I have found the extent of admixture so large, that it can hardly be called "accidental impurities."

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I have made examination of specimens with the following results:

A exhausted	with spirit	85 per cent.	impurities,			20	per cent.
B "	"	"	"	"	"	....25.7	"
C "	"	"	"	"	"	21	"

Specimens A and B were taken from the same lump of resin, showing that it was not very thoroughly mixed, it crumbled readily between the fingers, and its general appearance indicated the impurities very strongly.

Specimen C was very hard and uniform in appearance and came up to the requirements of the officinal description of the U. S. Dispensatory in every particular. Yet this 20 per cent. of inert matter is certainly not justifiable in a medicinal remedy, and if the commercial quality cannot be improved, would it not be advisable to introduce into our national codex under the head of preparations, "GUAIACI RESINA PURIFICATAS." The purification of this drug is very simple, as the pure and active resin can be extracted by means of alcohol, the tincture thus obtained evaporated to a syrupy consistence, spread upon a glass or porcelain surface and when cold remove the resin, break into small pieces, and preserve in glass bottles.

Under the present existing circumstances regarding the purity of the commercial drug, is it not commendable on the part of the dispensing pharmacist to purify his Resin of Guaiac? It certainly can be easily accomplished, as the manipulation is simple, and it repays well for the extra trouble by the satisfaction of knowing that it is Resin of Guaiac without some foreign admixture.

EXTRACTUM CHINAE FRIGIDE PARATUM.

BY HUGO F. BAUR.

This cold prepared extract of cinchona is a relic of antiquated Pharmacy, and although writers have frequently called attention to its seeming inertness as a medicinal agent, still it was incorporated into the German Pharmacopœia as an officinal remedy.

In this country it is also in favor with some practitioners, and to supply this demand the dispensing pharmacist is generally dependent upon the importer of German drugs, who charges from 70 to 75 cents an ounce. This price is beyond all proper comparison, when we take into consideration the cost of the materials that are used in producing the extract. The formula of the German Pharmacopœia is as follows:

Take of Brown (Pale U. S. P.) Cinchona,............2 parts.
Pour upon it Distilled Water,......................12 "

Macerate for two days, and express. Macerate the residue in a similar manner with

Distilled Water,...............................6 parts,

and express forcibly. Mix, and allow the liquid to settle, pour off the clear portion, and evaporate to one and a half parts, which strain, after cooling, and evaporate to the consistency of a thick extract.

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As this preparation can easily be prepared in the laboratory of every pharmacist where a demand for it may exist, it seems desirable when price and qualtity are taken into consideration that each one should prepare it for himself.

This is what has prompted me to impart to my colleagues of the profession the experience I have had with this preparation, and I hope that it may induce some of those dispensing pharmacists who are the supporters of a class of "middle men" (the manufacturing pharmacists), to return from the evil way in which they have strayed, and prepare for themselves the officinal galenical preparations of the Pharmacopœia, thereby giving their employes the necessary opportunities of becoming familiar with the manipulations of practical pharmacy, at the same time producing superior preparations, and usually at a less cost than furnished by the manufacturer.

In preparing this extract of cinchona the *Pharmacopœia Germanica* directs the employment of "maceration" and "expression," and the average yield by this mode of operation is stated to be from 10 to 11 per cent. Here again is an example which proves satisfactorly that our European co-laborers are the losers in not adopting more gener ally the process of percolation which certainly is generally a saving of time, labor and money in extracting from drugs the active principles.

Why our European brethren are so slow in adopting this real progress in Pharmacy we are unable to answer, all that we can say, is that they are behind the age of progress where practical results are brought into consideration.

In preparing this extract I have always selected the pale quill bark, known as the best *Loxa* or *Crown Bark.* This is reduced to a fine powder so that it passes through a sieve of from 50 to 60 meshes.

Take of this powdered cinchona any given quantity, moisten, and pack firmly in a glass percolator, then pass distilled water or water free from lime salts sufficient quantity, (about a gallon of menstruum to one pound of the bark) through it evaporate this a quarter of its former bulk, strain through muslin, and add to the strained liquid for every ten ounces one fluidrachm of glycerin, and continue the evaporation with constant stirring until reduced to the consistency of a thick extract having the sp. gr. 1·250, yielding about 25 per cent. of an extract, which is superior to that usually brought in the market and costing not over 25 cents an ounce.

The bark in the percolator can be further exhausted of the alkaloids, which have not been extracted by the water, by passing water slightly acidulated with chlorhydric acid through it, and the alkaloids precipitated out of the percolate by caustic lime, extracted from the precipitate with boiling alcohol which may be utilized in hair preparations, &c.

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CHLORATE OF POTASSIUM.

BY HENRY W. LINDENMEYER.

This salt of potassa is so constantly in use by the dispensing pharmacist, that the demand itself should suggest that a saturated watery solution of it be kept on hand, for the purpose of facilitating its dispensing when required in the state of a solution. Yet our experience has been that this is not generally the case, in what would otherwise be styled well regulated dispensing shops, and when this salt is ordered to be made into a solution, the usual method is the employment of powdered chlorate of potassium, which generally makes a turbid solution, due to the impurities alway present in commercial powders of salts. An article has been in the market for a number of years, which is titled *French* Chlorate of Potassium, commanding about fifteen to twenty cents more per pound than the commercial article, and is usually recommended by the wholesale dealer to the dispenser on account of its purity. Another article known as granular or purified, is sold at an advance of sixty-five to seventy cents per pound. Now this unnecessary outlay can easily be saved by the dispensing pharmacist, if he will prepare this purified salt for himself, as all that is requisite for the purpose is boiling water and filtering paper. The "modus operandi" is as follows: Take of commercial chlorate of potassium any weighed quantity, dissolve this in double its weight of boiling distilled water, and filter while hot through paper. As soon as the solution begins to cool the crystalization will commence, and proceed until 15 ounces out of every 16 ounces of chlorate of potassium employed, will have crystallized out of the solution. The salt is then collected upon a glass funnel, (the neck of which has been loosely closed by a glass stopper), allowed to drain and dried between folds of bibulous paper. The product thus obtained will have all the appearance of the so-called *French* article, and of such purity as that sold as purified. The mother solution which holds 1-16 of its weight of the salt in solution, can easily be utilized for the purpose of gargles, etc., where a small quantity of chloride of potassium, which is usually the principle impurity of commercial chlorate of potassium, is not positively objectionable.

THE OILS OF CHINESE PHARMACY AND COMMERCE.

BY DR. F. PORTER SMITH.

Honorary Member of the Pharmaceutical Society of Great Britain.

The word for oil in Chinese is written as a compound of the characters for liquidity and let. Oil thus means with them the "letting liquid," that which removes the hindrance of friction. The enormous demand for oil as an article of daily diet, to counteract the binding qualities of rice and other cereal foods, and in pastry making, and the extensive use of varnishes, putties, paints and pigments in China, lead to the manufacture of oil from all sorts of sources. Oil is

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exclusively used for lighting purposes in all stationary situations; it also enters into the composition of quack and orthodox plasters, a very favorite application in Chinese medicine and surgery; by the use of night-soil, on an extensive scale, in the form of irrigation; the rapid growth of enormous breadths of cruciferous plants, (a populous order in China), enables the Chinese to obtain large quantities of oil from this source. These colza-oils are miscalled olive oil in some European manuals on China. The olive tree is not known in China. Certain extracts are sometimes called oils in Chinese nomenclature. Soy is called an oil.

Oil of Almonds (sweet).—A bland oil is said by Sir J. Davis to be obtained from the (mixed?) kernels of the apricot or almond trees in North China, but I have never met with it.

Oil of (star) Anise.—This oil is said by Dr. S. Wells Williams, to be prepared from the fruits in small retorts, a hundred weight yielding about 7 pounds of the oil. It is pale, warm and sweetish, and becomes solid at about 50°. It is used as a condiment and cordial in South of China, and is exported thence to Europe and the United States. The common anise oil has not been met with by me in China.

Oil of Apricot Seed.—See oil of almonds.

Oil of Beans.—This oil is expressed in large quantities in North China, and at Newchwang, from the Dolichas Soza bean, by both natives and foreigners. The oil is often miscalled pea oil; is dark, not very palatable, and has some tendency to cause sickness. It is used in cooking very largely, and is very cheap.

Oil of Benzoin.—A fragrant, oily preparation is sold under this name, but it is not liquid benzoin. Dr. Williams says it comes from India. It is used in making ointments and plasters. It is probably liquid storax, or the rose-maloes of commerce.

Oil of Cabbage.—This oil, a kind of colza-oil, is expressed from the seeds of *Brassica Sinensis*, in increasing quantities, all throngh the valleys of the Yang-tsze and Han rivers. Very primitive machinery is used for this purpose. The seeds are crushed, steamed and put into wooden cylinders, usually made by hollowing out the trunks of trees. The oil is squeezed out of the mass, placed in coarse bags, by means of wedges driven down by mallets, or by an arrangement similar to that by means of which piles are generally driven into the earth in this country. In the last case water power is sometimes employed. The proportional yield is very considerable. The oil is of a dark yellow color, thick and has a pleasant odor. It is used for lamps, in cooking, and as a hair oil. It is laxative or even purgative to some extent, and applied to swellings, sores and ulcers.

Oil of Camelia. — This oil is prepared from the seeds of the capsular fruit of the *Camelli olcifera*, or mountain tea-tree, as the Chinese call this shrub, which grows in the same situation and soil as the tea-shrub proper, known by the same generic name, Ch'a or Ts'a. This tea oil, as it is miscalled by foreigners in China, is thinnish, yellow, and less fragrant than cabbage oil. Large quantities of this oil

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come from the hilly districts of Kiang-si and Hunan provinces, where the shrub grows in profusion.

Oil of Camphor.—Oily or uncrystallizable camphor is obtained from the island of Formosa, in the form of a yellow, strong-smelling liquid, which exudes from the crude native camphor, stored in tubs or vats, to the extent of some 3 or 4 per cent. It is scarcely saleable, and is altogether inferior to the oil obtained from the *Dryobalanops camphora*, on the west coast of Summatra, where the oil dripping from the split timber of the tree, failed to procure the Borneo or Baros camphor, is sold at the price of Dutch guilder for a large quart bottle full. It wonld be worth importing to England for use as cheap substitute for the Lin. Camphorae. It answers capitally as an embrocation in rheumatism and sprains.

Oil of Chaulmugra.—This oil is made from the seeds of the *Gynocardia odorata* or lucrubau fruits. The oil is both cold-drawn and made by super-heating the crushed seeds. It is used in leprosy as an outward application, with doubtful benefit, and is useful in the treatment of pediculi and itch.

Oil of Cinnamon or Cassia.—This volatile oil obtained from the leaves and twigs of the cassia tree by distillation, is made in Canton, and regularly exported. It is the Oleum *Malabathri* of commerce. This oil is nearly as good as Ceylon oil.

Oil of Cloves.—A well made, heavy, acrid oil, of a pale reddish-brown color, becoming very dark by age and exposure to light. None of these essential oils were known to the old medical writers in China, and are therefore not met with, as a rule, in their Pharmacopœia or Herbal. They are nearly all made at Canton, and are obvious imitations of European articles of commerce.

Oil of Cotton Seeds.—The oil expressed from the seeds of *Gossypium herbaceum*, and *G. religiosum*, is commonly used for purposes of illumination in Chinese country villages, where all wants are met on the spot in the most primitive fashion. It is also used in cooking, but the taste is unpleasant. It is prescribed as a demulcent remedy, and is applied to leprous scabeous, and other forms of skin disease, so fearfully prevalent in China.

Oil of Fish.—The Chinese do not as far as I can learn, extract oil from the liver of any fish, but there is an oil called *Yu-san*, prepared from the entrails, etc. of a fish. The cod has not been met with in Chinese waters. Large quantities of a fish resembling the cod are caught off the coast of Chehkiang (or Ningo) province, in the sixth or seventh (Chinese) months. The oil obtained from the porpoise (or "river pig" as they call it), which frequents the Yang-tsze-kiang river as far up as Hankow, is used to make putty for caulking vessels, and to burn in ship lamps. A yellow oil obtained from a fish called Hwang-ku-yu, has a strong fisy smell, and is used to destroy lice. It is much used in veterinary medical practice, a department of the Chinese medical art which has been practiced from an early period, and has an ancient and respectable literature of its own.

Oil of Ground Nuts.—This pale yellow oil, having an agreeble flavor, is expressed in large quantities from the seeds of the *Ara-*

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chis hypogoea, or underground nuts. Human province supplies a good deal. It is very cheap and makes a fair substitute for olive oil. The Chinese samples are much darker than the Indian, which are said by Dr. Waring to have a specific gravity of .916.

OIL OF HEMP SEEDS.—Several hemp oils derived from the seeds of a variety of the *Cannabes sativa*, are to met with in Chinese commerce. Specimens examined were evidently oils obtained from sesamum seeds, or those of the flax plant, both of which are confounded with the hemp plant proper.

OIL OF LILLIES.—This is cabbage oil, in which the axillary buds of the lily plant have been digested. The oil is recommended to be applied to vesicular eruptions. This very same, or a similar preparation was once in great repute in Europe. In fact to read the Chinese Pharmacopœia of to-day, is like reading the old dispensatories of the seventeenth and eighteenth centuries.

OIL OF LINSEED.—The oil of the seeds of a linium is used as a laxative, pectoral anthelmintic, and alexipharmic remedy, and as an application to scabbed heads. This oil is not easily procurable.

OIL OF MYRRH.—A reddish oil, having the smell of myrrh, is said by Loureiro to be used in Cochin China to dress ulcers. The Chinese are fond of making empyreumatic oils of various substances.

OIL OF PINE.—A sort of empyreumatic oil, or coarse turpentine, procured by heating the wood or knots of several species of pines.

OIL OF PEPPERMINT.—A very good essential oil is distilled at Canton from the leaves of *Mentha piperita*, *M. crispa*, *M. hirsrta*, and *M. canadensis*. It is put up in small bottles holding about a drachm. It sells at about 30 s. a pound. The Chinese bottles are very poor, and stand a good deal in the way of elegant pharmacy. There are several glass manufactories in the (Northeast) province of Shantung and at Canton. The bottles are very small and brittle. The Chinese pharmacists decorate their shops with ginger-jars and small blue-ware bottles. An oil is prepared at Canton from the pennyroyal plant. Mint is largely used as a remedy in belly-ache, but the dried leaves are generally used as an infusion.

OIL OF PERSIMMONS.—A glutinous oily extract is prepared from the fruit of the persimmon, a large, soft, orange-yellow fruit, very sweet, and often somewhat acrid. The fruit chosen for making this oil is that of the Diospyros Embryopteris or Embryopteris glutinifera, which grows plentifully in Hupeh province. The fruits are crushed to obtain the dark resinous, thick juice, which makes a very capital varnish for the paper kittysols or umbrellas of China. It is very cheap. An extract might be prepared from the fruit, as directed in the Indian Pharmacopœia, where it is prescribed as an astringent.

OIL OF POPPY SEEDS.—The opium poppy is largely grown in Sechuen, Yunnan and every province of China. It was introduced from Persia, a great source of drugs, sent as tribute to China. Several splendid varieties of the flower are given in old lists of plants. Oil is obtained from the seeds, but I have never inspected a sample.

OIL OF RICINUS COMMUNIS.—The castor oil plant grows to the height of more than ten feet, and forms a woody stem in Hupeh, but

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never survives the winter there. There is a red-stemmed variety and a white-stemmed plant, both of which are used to make the oil, which is used in cooking, and is sold for use as a lubricant on board foreign steamers. It is used medicinally, but not very frequently, as it does not purge Chinamen much, if at all. Crotom oil is used by Chinese physiciar in apoplexy, a common disease in China.

Oil of Roses.—This essential oil is used mainly as a scent for hair oil, so plentifully used by all Chinese women.

Oil of Sandal Wood.—The Chinese employ this thick, yellow, fragrant oil to daub over common fans, which are then sold as genuine sandal wood fans.

Oil of Sesamum.—The black and white sesamum seeds are used to make an agreeable oil, much used by the higher classes in cooking food and making pastry. It is credited in the Chinese Pharmacopœia with ecbolic, emanagogue, and anthelmintic properties. It answers all the purposes of olive oil in the dispensary. It is the Til or Jinjili oil of India.

Oil of Sunflower.—This oil is known to the Chinese, but is not extensively used or known to be employed in pharmacy.

Oil of Spike.—A fine drying oil, is used in painting on porcelain and for varnishing. It is obtained from the Lavandula or an Ocymum. The Labiates do not abound in China, but they are held in great repute medicinally.

Oil of Tallow Seeds.—This oil, made from the albumen of the seeds of the tallow tree, or *Excaecaria sebifera*, is clear, but of a dark color. It is obtained, in the proportion of from 15 to 16 lbs. from one hundred weight of the berries, by grinding, steaming, and pressing the refuse which results from the preparation of the vegetable tallow. The oil is used to varnish umbrellas, to dress the hair, and to mix with the tallow to make the candles which form so effective a part of the religious ceremonies of Buddhism, the Ritualism of China. It has emetic and purgative properties. It is one of the few remedies given by the Chinese in cases of poisoning, efforts are seldom made to rescue those suffering from opium poisoning, a common mode of suicide in China.

It will be observed that the oils of Chinese commerce are almost exclusively taken from vegetable sources. This is one of the effects of Buddhism on their national life and economy. As Buddhism teaches that mercy and pity are noble sentiments, it forbids the destruction of animal life. The flesh of the cow and the sheep is never eaten by orthodox Chinese members of the Buddhist Church. Their wax is therefore vegetable, their tallow is vegetable and their oils are vegetable. Their gelatines are made from sea-weed. Their daily diet is fish, oil, and rice, with an occasional treat of pork.

There are many other vegetable substances, such as ground seeds, the fruit of the *Aleuries triloba*, etc., from which the Chinese might prepare, or formerly have prepared, vegetable fats, in obedience to their strong religious teachings and highly economic tendencies. Mineral or rock oils are met with in Shansi, Sechuen and Formosa and in Corea. They are not used for illuminating purposes, as they

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are very inflamable, and are said to have been employed in warfare in the composition of a sort of Greek fire.—*London Pharm. Journal.*

ABOUT THE ELIXIRS OF THE A. P. A.

A correspondent ("S.") writes to the *Druggists' Circular* on this subject as follows:

Before the publication of C. L. Diehl's formulas for elixirs, I was in the habit of purchasing all my elixirs of elixir manufacturers, as these preparations were in constant demand both by the physicians and the people generally. I often felt that the Pharmaceutical Association should at an early day recognize the demand for more elegant vehicles for the administration of many of the more obnoxious remedial agents. This growing demand for these preparations was recognized at the last meeting of the Pharmaceutical Association. Their formulas I do not feel competent to criticise; but this much I can say from experience: I can make very inelegant elixirs by following their directions. I have ceased trying, and I have gone back to Mr. Diehl's formulas, which, with proper manipulation, produce in elixirs all that can be desired. There is no doubt in my mind that I make and furnish my trade with elixirs superior in every respect to any that I have ever purchased, and my trade in this class of preparations has been quite extensive. There is one thing in regard to the formulæ furnished by the P. A. that I cannot understand; that is, the preference given to the citrate of iron over the pyrophosphate. While the former produces an extremely dark, inky color, the latter is not affected by the tannin in the cinchona, and the resulting elixir is elegant both in color and in taste. Unlike many of my pharmaceutical friends, I am a firm believer in elegant and pleasant remedies. They go far in keeping up the cheerfulness of the invalid, and although they may not contain maximum doses, the deficiency is more than made good by the cheerful disposition produced, or rather maintained by giving pleasant rather than nauseous medicines. If the use of this class of remedies is to be continued, we should decide upon formulæ that will "fill the bill."

I have been preparing my bitter wine of iron from the formula furnished in your Dec., 1873, number by Chas. L. Mitchell. If carefully made, it is all that the most fastidious pharmaceutist can desire. In regard to your correspondents and their numerous improved recipes, my opinion is that druggists should be very cautious in making innovations on officinal formulas, and should never use unofficinal recipes without first proving them by a critical examination. Some few weeks since I found it necessary to make some paregoric for immediate use. I referred to your paper and detected the error noticed in your last issue.

There is quite an error in the new edition of Parrish's Treatise on Pharmacy which needs looking after. In the new formula for syr. scillæ comp. the Pharmaeopœia says: "and pour diluted alcohol upon it until *a pint* of tincture has passed. Boil this for a few minutes;

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evaporate . . . to *half a pint;* add fourteen fluid ounces of boiling water.

Parrish's new book on pharmacy says: "Pour diluted alcohol upon it until *three pints* of tincture have passed. Boil this for a few minutes; evaporate . . . to *a pint;* add 14 ounces of boiling water. The amount of material in both formulæ are the same. It is quite evident that this mistake occurs in the Parrish formulæ, as the resulting fluid with the sugar added, would make more than three pints of syrup—the officinal quantity. S.

ZANESVILLE, O.

EUREBUS in the following (August) number of the same journal comments on the above thus:

OUR SEMI-OFFICINAL ELIXIRS.

It is truly refreshing, amid the almost general dissatisfaction with which our semi-officinal elixirs have been received, to find one so heartily pleased with them as is your correspondent "*S.*" The only point that annoys him is the selection of the ferric citrate over the ferric pyrophosphate. It seems that he has seen stated somewhere that ferric pyrophosphate is not interfered with by cincho-tannic acid, and, receiving it as true, it is very natural for him to be surprised at the selection. Unfortunately, however, every specimen of tinct. cinchonæ comp. I have ever succeeded in making or obtaining, formed with both the pyrophosphate and ammonio-citrate, dirty, ink preparations, reeking with tannate of iron. The ferrated elixir of cinchona seems to me to be a prodigious failure, as all similar preparations must be in which the cincho-tannic acid is not removed by ferric sesquioxide. If it be absolutely necessary to have a placebo under that name, it would unquestionably have been better had one been devised in which the alkaloids, instead of the bark, should be used. So far as the remedial value of the preparation is estimated, it would derive but an insignificant injury if the cinchona were entirely omitted. It is an evil wind indeed which blows nobody any good, and I really believe we have more cause to rejoice than to regret that the Immuculate have so imperfectly performed their task. A well-devised class of formulæ for elixirs would perhaps have perpetuated this evil and induced a routine of practice dangerous to both physician and patient; but the semi-officinal elixirs being without the merit of efficiency in therapeutical strength, delicacy of taste, or beauty of appearance, will soon lose the popularity of the proprietary class and drag the entire fraud to destruction—a well merited doom.

I fully agree with "*S.*" that no other elixirs than those made according to the authorized formulas should be dispensed under the authorized name. Without receiving the contributions of the Pharmaceutical Committee as infallible, uniformity demands that we should observe them. Pharmacy as well as nations, requires an authoritative head, and its laws should be observed until replaced by better; but the pharmaceutist must be servile indeed who follows "*S.'s*" recommendation and does not seek better methods to produce better articles.

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If the advance of pharmacy is entrusted to a few unprogressive pharmaceutists, sad indeed must be the brains of American practitioners of pharmacy.—*Druggists' Circular.*

AMERICAN BROMINE.

BY S. S. GARRIGUES, PH.D., EAST SAGINAW, MICH.

QUERY 77.—**The statistics of the American bromine production.**

In reply to the above query I have the honor to make the following report. Bromine is now manufactured on a large scale in the Ohio and Kanawha Valleys, and the aggregate production for the last year was not less than 130,000 pounds. The rate of production has been in excess of the consumption. Of the total amount of bromine produced, perhaps five-sixths is forwarded to Eastern manufacturers of bromides at Philadelphia and New York, the balance to Cincinnati and St. Louis. The principal manufacturers of bromine are John. J. Juhler, successor to G. A. Hagemann, at Pomeroy, Ohio, and Messrs. Stieren & Nesbit, in West Virginia.

The quantity of bromine manufactured at any one establishment, in proportion to the salt produced by the same, is 1 pound of bromine for every 13 bushels of salt; a slight difference is noticeable in favor of the up river part of the salt strata; the depth of the wells and strength of brine increasing in the same direction.

Besides the bromine produced in the Ohio and Kanawha Valleys, there are also made some 800 or 1000 pounds per year, in Pennsylvania, along the Monongahela and Allegheny Rivers. At these places the bromine is converted into bromide of iron, to avoid the difficulty of handling, and risk of forwarding it.

There has been only one attempt to manufacture bromine in the Saginaw Valley, and this is now abandoned, owing to the small percentage of bromine contained in the brine.—*Proceedings Am. Pharm. Assoc.*

THE NAMES OF PLANTS.

The titles given by our ancestors to distinguish one plant from another, before they were marshaled by Linnæus into battalions of orders and species, distinguished by the number of their stamens, and construction of pistils—or arranged into more natural families by Landley and the later botanists, are often extremely poetic. There is a wealth of imagery and fanciful allusions, "playing with words and idle smiles," in them, which is something very interesting to trace out.

Some plants are named, like the "Eyebright," according to the "doctrine of signatures," *i. e.*, the notion that appearance of a plant indicated the disease which it was intended to cure—"the black purple spot on the corolla proved it to be good for the eyes," said the medical science of the day.

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Next comes the similitudes.

"'The Day's eye,' whose leaves spread,
Shuts when Titan goes to bed."

The "Hell's weed," (the dodder) which strangles the plant to which it attaches itself.

The Columbine, so called because in reversing the flower the curved nectaries look like the heads of doves (*colombes*) sitting close together in a nest. There is a whole garden full of plants sacred to the Virgin Mary, generally because they flower at some period connected with "Our Lady's" Days, the Visitation, the Assumption, the Birth, the Baptism, Purification—such as the "Lady's Smock," "Lady's Mantle," "Lady's Fingers," "Lady Slipper," "Lady's Tresses," the pretty little green Ophyrs with a twisted stem. "The Virgin's Bower" begins to blossom in July, when the Feast and Visitation occurs, and is in the fullest flower at the Assumption in August.

The "Lady's Bedstraw" belongs to no particular month, but has a very particular story for its name. The different plants were summoned to come and form a litter for the Virgin and Child in the stable of Bethlehem. They all made excuses one after the other, some were to busy, some declared themselves too insignificant, some too great, or it was too early or too late for appearing. At last this pretty little white star offered herself humbly for the place, and she was afterwards rewarded for her virtue by her flowers being turned to a golden yellow.

St. John's Wort, St. Peter's Wort, flower about the time of their respective Saint's Days. The Star of Bethlehem, Rose of Sharon, Joseph's Walking-stick, Jacob's Ladder, (the beautiful Solomon's Seal), are apparently accidental fancies.

The Holy Ghost flower, the Peony, flowers of course at Whitsuntide.

A series of traditions connected some peculiarity in a plant with an event in Bible history. The knot-grass, Polygonum persicum, has a large black spot on its smooth leaves, caused by a drop of blood falling from our Saviour, at the time of the crucifixion, on one of the plants which grew at the foot of the Cross.

The "Judas tree" is that on which the wretched traitor hanged himself in his misery—rather an unsafe stand to choose, but then it broke under his weight, as we are told.

The Cross was made of the wood of the aspen or trembling poplar, and its leaves have been smitten by the curse of perpetual quivering restlessness ever since.

The "Virgin's Pinch" is the black mark on the Persicary.

"Job's tears," so called "for that every graine resembleth the drops that falleth from the eye."

The Passion-flower, in which all the five emblems of the Passion are to be found by the faithful, the nails, the crown of thorns, hammer, cross and spear. "Christ's Thorn," the Cleditchia, from which the Crown of Thorns was supposed to have been made.

Cruciform plants are all wholesome, "the very sign of the cross making all good things to dwell in its neighborhood."

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Evergreens have always been held emblematical of the hope of eternal life. They were carried with a corpse and deposited on the grave by the early Christian, to show that the soul was ever living. An earlier Pagan use was when the Druids caused "all dwellings to be decked with evergreen boughs in winter, that the good spirits might take refuge there against the cold, till they could return to their own homes in the forests, when spring came back again." There is one group of plants named from human virtues and graces, quite independent of any qualities of their own: honesty, heart's-ease, thrift, true love, old man's friend, herb-o'-grace. Others from some resemblance to bird or beast; larkspur, crowfoot, cranesbill, coltsfoot, the devil's bit, where the root seems to have been bitten off, adder's tongue, cat's tail, pheasant's eye, mare's tail.

Each month had its own particular flower—the "Christmas rose," the pretty green hellebore, snow-drops, "fair maids of February," the "May flower," that covers the hedges with beauty, the "June rose."

The "poor man's weather glass," the pimpernel, closes when there is rain in the air; the "sheperd's hour-glass." by which he knows the time of the day. The extreme regularity, indeed, with which many flowers open and close at particular hours is such that Linnæus made a dial of plants, by which a man might time himself, as with a clock, by watching their petals unclose."

The merely pretty allusions are many—Venus' looking-glass, love lies bleeding, queen of the meadows (the beautiful spirœa) crown imperial, monkshood marvel of Peru, sundew, silver weed, goldie-lockes, "a moss found in marish places and shadie dry ditches, were the sun never showeth his face."

There remain a number of names which have accidentaly been chosen to express particular ideas. "Lad's Love," given to your flame in the country, when the swain's words are scanty:

> "Violet is for faithfulness,
> Which in me doth abide."
>
> Sonnet, 1,354.

The "Pansy" ("that's for thought,") or "Heartsease," still called in country places "Love in Idleness," as in the Shakespearian compliment to Elizabeth in the Midsummer Night's Dream.

> Yet marked I where the bolt of Cupid fell.
> It fell upon a little western flower,
> Before milk white, now purple with love's shaft,
> And maidens call it 'Love in Idleness!' "

"Rosemary ('that's for remembrance') "I pray you, love, remember," says Ophelia, in her madness. It was carried at funerals.

> "Marygold that goes to bed with the sun,
> And with him rises weeping."

And the marsh edition of it, "all aflame," as Tennyson describes it.

"Speedwell," said the little blue Veronica in the hedge to the old folk who went before us. "Forget-me-not," called the turquois blue Myosotis from the water as they passed by.

"Bloody Warriors," the dark wall flower, and bright blue "Canterbury Bells," filled their gardens.

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We pay for the convenience of our present nomenclature, by the piling up of Greek and Latin words, such as "Habrothamus." "Ortiospermum," "Intybaceum," and the like. While the utterly irrelevant proper names, such as the "Wellingtonia," for a pine-tree belonging to the far west American mountains, scarcely even heard of while the "Duke" was still alive—the roses dedicated to French marshals, most unfloral of men, are symptoms of our present poverty of language-making.

The host of new shrubs and plants now continually introduced, require a more systematic kind of name-making than of old; but we can not help sometimes regretting the poetry of invention which has passed away from us, the loving transfer of our human thoughts and feelings to the inanimate things around us; the beautiful religious symbols into which our ancestors translated the nature about them, and which so often must have helped them to "rise from Nature up to Nature's God."

BROMIDE OF IRON AND ITS PREPARATIONS.

BY M. PRINCE.

Extract from a paper read before the Society of Pharmacy at Lyons. (Bull. Soc. Pharm. Bord., vol. xi., p. 138.)

According to a calculation based upon the chemical equivalents of bromine compared with that of iodine, in combination with iron, the author was induced to try the following formula:

Unoxidized Iron Filings, - - - - - -	100
Distilled Water, - - - - - - -	768
Bromine, - - - - - - - -	210

After having introduced the iron filings and the water into a vessel having a capacity of about two litres, 40 or 50 grams of bromine were added, and the mouth of the vessel promptly stopped with a good cork, in order to avoid loss of the latter, which escapes quickly in reddish-yellow vapors due to the development of heat when the first portions come into contact. These vapors disappear, and are replaced by others of a violet color, which, like the former, only last a few seconds. A fresh portion of bromine was then added, and this operation was repeated untilall the brmoine hasbeen used.

When this was effected, the whole (including the excess of iron contained in the solution, which is indispensable to its preservation), was transferred to a stoppered bottle.

The first operation being completed, the author sought to ascertain whether the solution so obtained contained the estimated quantity of bromide of iron. Thirty grams were filtered and rapidly evaporated to dryness, when it yielded one-third of its weight of the anhydrous salt. The author, therefore, gave it the name of normal titrated solution of protobromide of iron, and has used it in three different preparations, of which the following are the formulæ:

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BROMIDE OF IRON LOZENGES.

Normal Solution, (filtered)	- - -	18 grams.
Powdered Gum Tragacanth,	- - -	1·50 "
Finely Powdered Sugar,	- - -	100·50 "

Evaporate the solution in a porcelain capsule, to half its weight, (9 grams); pour it then into a marble mortar, add the gum previously mixed with a small quantity of the sugar; after mixing, add the remainder of the sugar and bray the paste well. Afterwards spread it out upon a marble slab, and divide it into lozenges weighing one gram each, which should be dried promptly and put in a dry place. Each lozenge will contain five centigrams of protobromide of iron.

BROMIDE OF IRON PILLS.

Normal Solution, (filtered)	- - -	12 grams.
Iron Filings,	- - - - - -	0·10 "
Powdered Gum Arabic,	- - - -	q.s.
Liquorice in powder,	- - - -	q.s.

To make 80 pills.

Pour the solution with the small quantity of iron into a porcelain capsule, and evaporate quickly until the liquid has lost two-thirds of its original weight; then pour it, still warm, into a well-dried and slightly-warmed porcelain mortar, add at the same time the two powders, previously mixed, and in sufficient quantity to form a consistent pill mass, which should be divided equally into eighty pills, and kept in a well-stoppered bottle sheltered from damp. Each pill will contain five centigrams of the protosalt.

SYRUP OF BROMIDE OF IRON.

Normal Solution, (filtered)	- . -	12 grams.
Syrup of Gum and Orange Flowers,	-	6·20 "

M. S. A.

This quantity will represent a demi-litre of syrup containing four grams of protobromide of iron, or 20 centigrams of the active principle to each 31·60 grains of the syrup.—*London Pharm. Journal.*

ON THE CHEMISTRY OF ELEMI.

BY PROFESSOR F. A. FLUCKIGER.

Towards the year 1820, George Samuel Perrottet, a Swiss botanist, then a collector for the Jardin des Plantes, at Paris, brought to Lausanne, from Manilla, a specimen of the resin of a tree known in the Phillipines as *Arbol-a-brea*, *i. e.* Pitch Tree. The tree is thus called on account of its abundant resin, which is much used in the Phillipines for the caulking of boats, for torches, and also in medicine, but the resin does not appear to have been at that time collected for exportation.

At Lausanne this resin was examined by the distinguished chemist, Samuel Baup, who found it to have "non peu de resemblane avec la résine élémi." It is, in fact, nothing else than that kind of elemi which is now largely exported from Manilla, and has long superseded

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the other sorts of this drug, which had successively made their appearance in the European market. I am not aware of the exact period at which Manilla elemi first reached Europe in large quantities, yet Baup, in his paper, "Sur les résines de l' Arbol-a-Brea et de l' Elemi," contained in the *Journal de Pharmacie et de Chemie*, vol. xx. (1851), pp. 321-332, was not of the opinion that Perrottet's specimen agreed with elemi as then found in commerce. We may, however, presume that Baup was no longer thoroughly familiar with the drug market, since he had in 1823 already retired from practical pharmacy. But there is another fact, which seems to me in favor of Baup's opinion, that the elemi of his time was not that from Manilla. The essential oil of elemi was found, in 1841, by H. Sainte-Claire Deville,* to be strongly levogyne and to easily yield a crystallised compound, $C_{10}H_{16}$, 2HCl, whereas elemi of Manilla, which I have repeatedly examined, affords a dextrogyne oil, incapable of yielding this solid hydrochlorate. This, I think, is sufficient to show that in 1841 Manilla elemi was not yet the prevalent sort, or, at least, that Deville's drug was not such. I had the opportunity, on the other hand, of examining a small fragment of the very substance which came into Baup's possession, and think it agrees with the Manilla element of the present market, only differing from the latter in being black. This is due to the smoke of the torches, which were applied to the tree in order to promote the out-flowing of the oleo-resin. As to the *Arbol-a-brea*, and its botanical characters, nothing precise and satisfactory has yet been made out.

Among the substances isolated from Manilla elemi by Baup, I shall notice now only those *soluble in water* which he termed bryoidin and breïdine. He obtained them in the following way:—As elemi consists chiefly of essential oil, a crystallisable resin, sparingly soluble in cold alcohol, and an amorphous resin, easily removable by the latter liquid, Baup first boiled the drug with alcohol of 90-95 per cent. On cooling, the colourless crystallisable resin ("la sous-résine") is deposited, and may be washed with cold alcohol of 85 per cent.; these crystals were called amyria, becauee at that time a Brazillian tree, *Amyris elimifera* (Linn.), was thought to furnish the elemi of commerce, and Baup regarded the amyrin obtained from the latter as identical with the crys tallisable part of the oleo-resin from the Philippines. The alcoholic solution, separated from the amyrin, was then submitted to distillation, in order to drive over the essential oil and the alcohol. The residue in the still consisted of the soft amorphous brownish resin, and a turbid, aqueous liquid. The latter was decanted, the resin repeatedly washed with alcohol of only 50 per cent. (about .916 sp. gr.); the mixed liquids were then evaporated, to deprive them of essential oil and alcohol. Finally, a brown oily aromatic† mass separated and sunk, while, upon cooling, delicate, white needle-shaped

* "Comptes Rendus," vol. xii. (1841), p. 184.

† I am indebted for it to Mr. Roux, late pharmacien of Nyon, Lake of Geneva, the author of *Notice biographique sur Samuel Baup, chimiste*, in the *Sehweizerische Zeitschrift fur Pharmacie*, December, 1862, Appendix. Its peculiar smell is not at all that of the original essential oil of elemi.

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or moss-like crystals made their appearance, and were termed by Baup bryoidin. The liquid, on further evaporation, separated into two layers, of which the heavier proved to contain chloride of potassium and other inorganic salts; the upper thickish layer (resembling the before-mentioned "aromatic" mass) afforded, when boiled with a little water, some more bryoidin. These latter crops of crystals, after repeated purification by water, finally gave a substance, which, according to Baup, did not agree with bryoidin, and he therefore distinguished it as breidin.

The characters of the two substances are thus described by Boup: —Bryoidin is a little bitterish and somewhat acrid; its silky crystals may be sublimed between two watch glasses, when they form moss-like tufts. The crystals melt at 135° C.; they require, at 10°, 350 parts of water for solution. This solution is neutral; acetate of lead, either neutral or basic, produces in it a precipitate. Bryoidin is much more abundantly soluble in alcohol, ether, essential or fatty oils, or acetic acid. With concentrated sulphuric acid it assumes a red colour.

Breidin, according to Baup, is in prisms, exhibiting angles of 102° and 78°, and terminating in four-sided pyramids; 260 parts of water, at 10° are sufficient to dissolve one part of breidin; and the solution is precipitated by basic acetate of lead. Breidin is freely soluble in alcohol, not so much so in ether. The crystals melt at a little over 100° C, and are volatile, like those of bryoidin. These characters are, it will be observed, no very well marked differences between the two substances, and I believe that they are not really different at all.

I am not aware that any chemist attempted to repeat Baup's observations until last winter, when my friend, Mr. Hanbury, caused to be distilled a quantity of Manilla elemi, and took the opportunity of examing the watery liquor remaining in the still for bryodin. He succeeded perfectly in obtaining this substance in colourless crystals by a method which we have described in the work on drugs, which is about to appear under our joint authorship. Since those observations were printed, I have carried on the experiments a little further, and, after various trials, have adopted the following as the best process for extracting bryoidin, as it appeared evident that weak alcohol is a good solvent of bryoidin. I placed four kilogrammes of elemi in a copper still, and had it gently warmed in the water-bath for a day or two, with twenty kilogrammes of alcohol of 972 sp. gr.. that is to say, a weak spirit containing but 22 per cent. of alcohol. The essential oil which came over was separated, and the spirit of wine, from which it was removed, was returned to the still· After this operation had been sufficiently carried on, the still contained a solid resin, and a weak alcoholic solution, A. The resin was now boiled for a day with much water, and afforded another portion of essential ail, which I found to be dextrogyne, like that obtained by means of dilute alcohol.† The water in the still (B) was separated, and the resin warmed with about twelve kilogrammes of aloohol, sp. gr. ·830, and two kilo-

† See *Pharmacog.*, p. 132, where we already stated another sample of oil of elemi to deviate also to the right hand.

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grammes of wates. After cooling, the liquid (C) contained the amorphous resin, the other resin being deposited in white crystals, agreeing with Baup's amyrin.

In order to get bryoidin, I submitted the liquid A to distillation in a still, and subsequently evaporated the merely aqueous liquid from which the alcohol had beeen abstracted. During the evaporation a very small amount of crystallised amyrin, contaminated with a trace of the amorphous resin, first separated. The weakness of the alcohol which had been used prevented any larger amount of resin being dissolved. It is important not to evaporate at once all the liquid A, and especially not to allow it to boil. After having tried the preparation of bryoidin in different ways, I came to the conclusion that the best plan is to evaporate on the water-bath small successive portions of the liquid until they begin to yield crystals of bryoidin floating on the surface. The liquid should then be allowed to repose for 24 hours, when the bryoidin can be removed from it, the mother liquid being reserved for further avaporation. By heating the solutions to full ebullition, bryoidin itself would evaporate to some extent. By gradual evaporation, as just described, it is obtained at once in a state of approximate purity. But if the concentration of the liquid is carried on without separating the crystals as soon as they appear, the final purification of the latter becomes difficult by reason of another principle occurring in elemi. This is a brown bitter substance which is more abundantly soluble in water than bryoidin. In the treatment or elemi just recommended, this bitter substance is contained in the aqueous liquid A, together with bryoidin. If this liquid is concentrated, brown drops of the bitter substance separate at a certain moment, and form a thickish resinoid deposit. Now, if the crystals of bryoidin have not been taken out of the liquid, they will be enveloped and thrown down by this resinoid matter, and can only be recovered therefrom with difficulty.

As to the liquid B, I have evaporated it with the same care, and got from it a little bryoidin, yet scarcely enough to repay the trouble. The same must be said with reference to the solution C; if this is deprived of alcohol the amorphous resin separates, but the aqueous liquid proves poor in bryoidin. As a rule, I cannot, therefore, recommend to include the liquids B and C in the process. The whole amount of bryoidin which I have been able to remove from elemi does not exceed 3 per cent., that is to say, of nearly pure bryoidin; its appearance in the mother liquors is much more promising, owing to its extreme lightness and flocculent aspect.

To purify bryoidin, it must be repeatedly re-crystallised from boiling alcohol of 25 per cent. At first the solutions are slightly brownish, a little turbid, bitterish in taste, and yield precipitates with tannic acid or with neutral acetate of lead. All this is but due to traces of the bitter principle, for after several re crystallisations, using also a little charcoal, the solutions become colourless, perfectly clear. devoid of taste, and miscible with either neutral or basic acetate of lead, without being precipitated. The final yield of pure bryoidin is unfortunately much reduced by purification. Instead of the voluminous

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tufts obtained in the earlier stages of the operation, bryoidin may be at last got in brilliant prisms by allowing the solution to evaporate spontaneously. This is, I think, the substance that Baup called breidin. I have been unable to find any real difference between it and my bryoidin; under the microscope the prisms display a remarkable tendency to split longitudinally, which is well in accordance with the usual moss-like growth of the substance. The latter shows under the microscope very long, soft, thread-like crystals. In polarised light the crystals are seen to be refractive; they consequently do *not* belong to the cubic system.

There can be no doubt that Baup's observations are correct; yet it is evident that some of the properties he assigned to bryoidin apply to the imperfectly purified substance; his investigation must nevertheless be commended as a remarkably successful one,* when it is considered that he had but very little of the "resin of the Arbol-a-Brea" at his command.

At 135°–136° C., bryoidin melts, and at a more elevated temperature can easily be sublimed; it volatilises in fact below 100° so that very nice tufts are produced by exposing it for some days to the heat of the water bath only. The crystals are anhydrous, giving off no water, either over sulphuric acid or at 100° C. They are readily soluble in alcohol, bisulphide of carbon, chloroform, ether, acetic acid, also in essential oil of elemi or glycerin; the solubility is not increased by the presence of alkalies or acids. Cold concentrated sulphuric acid slowly dissolves bryoidin, and assumes, when warmed with it, a reddish hue. By cold nitric acid, bryoidin is liquefied and forms brownish drops not soluble in the acid.

Bryodin purified by repeated re-crystallisation and sublimation assumes a fine red colour if it is exposed to dry hydrochloric gas; it is subsequently liquefied, and turns violet, then a most brilliant *blue*, and lastly an intense *green*. The colours are permanent for several days; the liquids are soluble in chloroform, yet I have not succeeded in getting a solid compound by the hydrochloric treatment. These reactions are not at all displayed by amyrin, the before mentioned crystallisable resin of elemi. As to the amorphous part of the resin, it turns only a little reddish by hydrochloric gas, probably on account of a trace of bryoidin which it obstinately retains. The essential oil of elemi, if saturated with anhydrous hydrochloric gas, assumes a dark violet tint.

I have failed in ascertaining satisfactorily the solubility of bryoidin in water. I found one part of it to be contained in 384 parts of a solution saturated at 28·20° C.; but another solution prepared at 25° C. afforded one part of bryoidin in 492 parts. A solution prepared by boiling water with bryoidin in ezcess, and then allowed to remain for a week that the crystals should deposit, yielded one part in 523 parts of the solution. In every case the solutions were carefully con-

* Like many others due to that zealous man; we may quote, for instance, his valuable contributions to a knowledge of quinine, cinchonine, kinic acid, citric acid, aconitic acid, and equivalent numbers. Baup was born May 15, 1791, at Vevy, on the Lake of Geneva, and died February 9, 1862, at Lavaux, not far from the former place. In 1816 he paid a visit to London, and saw Brodie and Brande.

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centrated at a temperature not exceeding about 70° C., and then fully evaporated over sulphuric acid. The loss of bryoidin to any appreciable amount was thus avoided. I think the discrepancies are due to the formation of supernaturated solutions.

In boiling water, bryoidin is not much more soluble than in cold, for 200 parts of it are able to dissolve but one of bryoidin, of alcohol 22 per cent. (0-972 sp. gr. at 15° C.) 147 parts dissolve one of bryoidin at 28* C., yet much more when warmed.

The analysis of bryoidin afforded, on an average, carbon, 74-21 per cent., and hydrogen, 11-52; these numbers may refer to the formula, $C_{20}H_{38}O_3$, namely:—

				Analysis.
20 C	240	equal to	73·62	74·21
38 H	38	"	11·65	11·52
3 O	48	"	14·73	14·27
	326		100·00	100·00

Thus bryoidin may be regarded as a hydrate of the essential oil contained in elemi, that is to say, as answering to to the composition —$2(C_{10}H_{16}) + 3H_2O$; yet it must be borne in mind that it contains no water of crystallisation. By submitting it to sublimation it undergoes no alteration, as already proved by its melting-point remaining the same as before, namely, 135°-136° C. This view is supported by the composition of the amyrin.* The above, I believe, to answer to the formula, $C_{20}H_{34}O$. This substance might be regarded as $C_{20}H_{32} + H_2O$, and flryoidin, $C_{20}H_{32} + 3H_2O$; there can be but little doubt that elemi will also afford the intermediate compound, $C_{20}H_{33} + 2H_2O$.

In its general behaviour, bryoidin resembles terpin, $C_{10}H_{16} + 3H_2O$, the crystallised hydrate of essential oil of turpentine, or rather of the substance $C_{10}H_{20}O_2$, which is obtained when terpin, by melting, parts with H_2O, that is, losing 9·47 per cent. This anhydrous terpin melts at 150°, and is soluble in 200 parts of cold, or 22 parts of boiling water, and freely soluble in all alcoholic or ethereal liquids. There are, however, great differences between bryoidin and terpin. By boiling the latter with very little dilute sulphuric acid, terpinol, $C_{20}H_{34}O$, a fragrant liquid, is formed. No such thing is produced with bryoidin. Nor is terpin coloured by hydrochloric gas. Again, if bryoidin is brought into contact with acetyl chloride, a very energetic action and effervesence takes place, whereas terpin quietly dissolves, so does likewise amyrin.

Bryoidin and terpin agree inasmuch as they are volatile, and, in solution, devoid of rotatory power, although both these compounds are derived from essential oils, $C_{10}H_{16}$, which possess that optical characteristic.

It would appear possible that the constituents of elemi may be allied thus:—

* To this circumstance may be due the remarkable separation of *flocks*, described in our *Pharmacographia*, p. 134.

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Essential oil	$C_{10}H_{16}$
Crystallised resin (elemin or amyrin) ..	$2(C_{10}H_{16}) + H_2O$
Amorphous resin (?)	$2(C_{10}H_{16}) + 2H_2O$
Bryoidin .. .., ..	$2(C_{19}H_{16}) + 3H_2O$

But further researches are needed to prove the correctness of this suggestion.

The bitter substance already mentioned is by no means abundant in elemi, though it appears to be present to a somewhat larger amount than bryoidin. I have in vain endeavoured to isolate from it a well-defined compound. The resinoid brown mass which at last separates from the concentrated aqueous solutions, A or C, has a very intensely bitter, and at the same time aromatic, non-acrid taste. The latter reminds one of orange-peel, and is certainly due to the substance itself, not to essential oil of elemi. An entirely different and strong odour is evolved by the bitter mass, if it is boiled with dilute sulphuric, nitric, or hydrochloric acid. In this case, the odour is somewhat suggestive of melon, caraway, or especially of a fresh terebinthinous varnish. By this treatment with acids, the bitter taste disappears. I have not been able to ascertain whether sugar is, at the same time, produced, because the brown bitter mass would appear already to contain some sugar, seeing that it is capable, to a small extent, of reducing alkaline tartrate of copper. If the bitter mass is warmed with a moderately concentrated mineral acid, it assumes an intense violet or blue colour, and is also coloured in the same way by dry hydrochloric gas. From a solution in dilute alcohol, the bitter semi-fluid mass is partly thrown down by absolute alcohol: yet this precipitate proves to be by no means a pure substance. Its aqueous solution is partly precipitated by tannic acid or by neutral acetate of lead, another portion remaining unaltered in solution. I have failed in removing from the bitter substance the inorganic matters which, as shown by incineration, it largely contains. Baup was well aware of the large amount of mineral substances occurring in the extracts of elemi; in fact, they appear to constitute the chief amount of the brown bitter deposit.

The CHAIRMAN, in proposing the customary vote of thanks to the learned Professor who had prepared the paper, said that it was only another instance of the laudable zeal displayed in the pursuit of knowledge in the vast field of pharmaceutical chemistry.

Mr. HANBURY said it was rather difficult to follow the details given in this paper, therefore he might perhaps be excused for making a remark or two with the object of simplifying the explanations the writer gave with reference to the mode of obtaining it. When he (Mr. Hanbury) prepared the specimen that was on the table, he was not at all aware of the facts that were subsequently elicited by Dr. Flückiger's researches, and he got it by a simple evaporation of the watery liquid in a still after obtaining the essential oil. In that way he secured a colourless crystalline, and by a little manipulation obtained it in a state of purity. Having minutely described the process, Mr. Hanbury went on to say that Professor Flückiger, in one part of his paper, spoke of the separation of *flocks*, and he (the

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speaker) would just explain what that was. When one was purifying the bryoidin from the aqueous solution, or rather re-crystallising it (because it was perfectly colourless), one got the matter liquor. Pouring that off, and filtering it, the result was a perfectly clear solution. Then it immediately became turbid, and deposited what looked like pieces of white paper or wool. If they examined the substance it showed filminite crystals, and they did not re-dissolve by either heating or cooling. With regard to amyris, that was easily prepared. If they took the South American or Mexican elemi they got a white matter separating itself, which proved to be extremely crystalline, and might very easily be obtained in distinct crystals. Such was amyris; and, as far as they knew, that appeared to be the same in the elemi from these different sources. It was a beautiful sample of a crystallisable resin, the nature of which students could easily investigate for themselves—it was so easily got in a state of purity.

The CHAIRMAN: These bodies are resin.

Professor ATTFIELD: No; bryoidin. Amyris is a crystallisable resin.—*Druggisi and Chemist.*

WEIGHTS AND MEASURES.

BY OSCAR OLDBERG.

"The plan of decimal gradation in weights and measures is the only rational one, because it is in accordance with the universally adopted decimal notation. If thoroughly carried out, the facilities it would afford in every department of life are scarcely calculable. For one thing, it is not too much to say, that one-half the time now spent in Great Britain in learning arithmetic might be saved. That study might, in addition, be made an effective means of mental discipline; whereas, at present, the time must be spent in acquiring something like a ready but blind application of complicated rules. The most striking instance, perhaps, of the inconvenience of the *arbitary mode of division* is furnished by the thermometer. In this case, nature has fixed the fundamental measure, and made it the same for all nations; the interval, namely, between the freezing and boiling-points of water. And yet, in England, this space is divided into 180 parts (F.) or degrees; in Germany, and the Continent generally, into 80° (R.); and only in France and Sweeden has it been divided into 100°. Thus the basis of uniformity made to our hand has been thrown away, and every observation of temperature made in one country has to be painfully translated before it can be understood in another."

The earnest endeavors put forth of late years by scientists, and especially by political economists of the highest distinction, to effect a harmonious international system of weights, measures, and coinage, and the general favor with which the metric system is received by the leading minds of the commercial, no less than the scientific world, justify the prediction that the units of this system will eventually

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become the standard units of computation for purposes of international exchange and scientific intercommunication the world over. The changes required in order to establish simple numerical relations of the units of our weights, measures, and coinage to metric units are slight, and various propositions have therefore been made to so modify our present systems as to bring about a certain harmony between them and the metric system, on the ground that such action would be a step towards international correlation, inasmuch as all future systems that may be adopted will undoubtedly be established upon a metric basis, and all systems bearing a simple relation to the same given standard must inevitably bear simple relations each to the other.

At a late meeting of the American Association for the Advancement of Science, held in Portland, Maine, some very ingenious suggestions for the adaptation of our system of apothecaries' weights to the metric system, were made by Mr. E. B. Elliott, of the Statistical Bureau at Washington, a gentleman whose experience and labors in matters of this nature entitle his opinions to great respect.

According to the best trials yet made, the gramme is equal to 15.-432349 troy grains. Mr. Elliott draws our attention to the fact, that, by introducing a new grain, fifteen of which shall weigh *exactly* one gramme, we have at once established the more simple numerical relation of 15 to 1 between these two units without the interminable fraction, while the difference between the new grain and the troy grain would be so small as practically to be scarcely appreciable. The best system based upon this plan is deemed to be the following:

1000 semi-grains = 1 ounce; 30 ounces = 1 kilogram. The semi-grain is equal to 1-30 of a gramme.

The term semi-grain, not having been heretofore used, would render the liability to confusion less than if the proposed *new grain* were adopted, and at the same time affords us an opportunity to subdivide the ounce into thousandths, while the difference between two semi-grains and one troy grain would still be only about 0.0288 +. This system, however, would necessitate a change also in the value of the ounce, which must contain 514.4 + troy grains (500 new grains, or 1000 semi-grains) instead of 480.

But it is incontestable that the changes above alluded to would bring our weights into a very close relationship with the metric system, for our 30 semi-grain weight would be exactly equal to the gramme, 3 semi-grains to a decigramme, 3-10 of a semi-grain to a centigramme, &c.; and the arithmetical operations necessary to convert semi-grains into decigrammes, and *vice versâ*, would be only a division or multiplication by 3.

A singular coincidence herewith is the well-known fact that our gold coins weigh (within 3-1000):

	Tergrammes (or thirds of a gramme.)	Semi-grains.
The Double Eagle, - - - -	100	1000
The Eagle, - - - - - - -	50	500
The Half Eagle, - - - - -	25	250

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The Three-dollar piece, - - - -	15	150
The Quarter Eagle, - - - -	12.5	125
The One-dollar piece, - - - -	5	50

Our silver coins weigh exactly:

	Grammes,	Semi-grains.
The Half Dollar, - - - -	12.50	375
The Quarter Dollar, - - - -	6.25	187½
The Dime, - - - - - - -	2.50	75

Consequently, equivalents as to value:

Standard Gold. 9-10 fine.		Standard Silver. 9-10 fine.
1 ounce - - - - -	=	5 hectogrammes.*
1 tergramme - - - - -	=	1 pentagramme.
2 semi-grains - - - - -	=	1 gramme.
(1 grain (*new*) - - - - -	=	1 gramme).

Another interesting fact is that our gold dollar weighs (within 3-1000) one German "Quent," and that the "Korn" is exactly equal to ½ semi-grain.

But let us retrace our steps.

The most formidable objection to the introduction of the metric system of weights seems to be that old practitioners of medicine cannot be prevailed upon, or even expected, to use new terms or denominations of quantity in their prescriptions. They will continue to write ounces, drachms, scruples, and grains. The question arises here whether this objection is really as formidable as generally supposed to be. From the comparisons drawn above, and still more clearly from the tables of approximate equivalents of metric and troy weights given in the last revision of the United States Pharmacopœia, it will be seen that reductions from terms of one system to those of the other are not at all difficult, if we are willing to acknowledge the truth that one-fortieth part more or less cannot possibly produce any noticeable difference in doses or their effects. How many pharmacists possess a pair of scales sensitive to 1-40 grain? Indeed, it may be asked, how many druggists are habitually so careful as not to frequently dispense one-fortieth part too much or too little in weighing out small quantities? Let us suppose that a mixture containing 1 grain of strychnia be prescribed, to be divided into 40 (or 41) pills. I cannot, for my part, believe that it would cause any appreciable disturbance in the course of the doctor's treatment if said pill-mass be instead, for convenience's sake, divided into 41 (or 40) pills. If this be true, and if it is so easy to adapt our weights to the metric unit when this insignificant difference of 1-40 in the ratio of 15 to 1 be ignored, then I do not understand why we may not immediately adopt the metric system of weights entire. Let old physicians continue to write grains and ounces, if they prefer it. It would be throwing a slur upon the intelligence of the average pharmacist to say that he cannot readily convert any number of troy grains into a corresponding number of decigrammes by subtracting one-third.

* 5 hectogrammes are equal to the coinage pounds of Germany and several other nations.

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As for the only really ***serious*** objection to the adoption of the metric system of weights—the fact that the symbols for the gramme and the grain ***may*** be too much alike—it is not by any means an insurmountable obstacle. There is no difference of opinion as to the superiority of the metric system. Now, I ask, shall we forever continue to use our grain, instead of the gramme, because, unfortunately, it so happens that both terms begin with the letters ***gr?*** I think it would be better for us to devise some means whereby this ambiguity may be avoided. I would suggest that the ***gramme*** be written ***in full***, with the accompanying figures given on each side of the word in the following manner:

5 | grammes | 5.

In using centigrammes, these may be written 5 | cg | 5.

The objection urged by the committee appointed for the revision of the United States Pharmacopœia, that this change would involve much labor in said revision, is not worthy of notice, and certainly does not justify the bad faith with which it carried out the instructions of the convention that created it. We take the liberty to remind the reader that a resolution was passed to make some portion of the metric system officinal in the fifth revision of the Pharmacopœia, which resolution has been totally ignored, as well as the instruction to substitute measures of weight for measures of volume. It is to be hoped that our next revision will embrace the introduction of the metric system of weights to the exclusion of all others and of measures of capacity.—*Proceedings Am. Pharm. Assoc.*

COLLATED PRACTICAL RECEIPTS.

COMPOUND CHARCOAL POWDER.

Take of Carbonate of Magnesia in fine powder, Charcoal in fine powder, of each one part; Rochelle Salts in fine powder, four parts. Mix.

ASTRINGENT ROSE-LEAF TABLETS.

Take of	Red Rose, in fine powder	3 ounces.
	Catechu, " "	3 ounces.
	Tragacanth, " "	½ an ounce
	Sugar, " "	24 ounces.
	Oil of Rose,	25 drops.

Rub the powders together until they are thoroughly mixed, then add the Oil of Rose, and when incorporated, form a mass with sufficient Rose Water, and divide in troches weighing 10 grains each.

ANISEED CORDIAL.

Take of	Anise Water,	Ten parts.
	Simple Syrup,	Four parts.
	Alcohol,	One part.
	Sherry Wine,	One part.

Mix.

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SODA-MINT.

Take of Bi-Carbonate of Soda,......................4 drachms.
Aromatic Spirit of Ammonia,............1 fluidrachm.
Peppermint Water,............................1 pint.
Mix.

PECTORAL CIGARETTES—FOR ASTHMA, ETC.

Take of Nitrate of Potassium,........................One part.
Water,...................................Fifty parts.

Dissolve the Nitrate of Potassium in the water, and soak in this solution bibulous paper, and when the paper has dried brush it over with a mixture composed of equal parts of *Tincture of Cascarilla* and *Compound Tincture of Benzoin*, which, when dry, cut into pieces (2 x 4 inches) and roll into cigarettes.

FLAVOR FOR TOBACCO.

Take of Tobacco Stems (Havana),....................8 parts.
Valerian Root,...........................4 "
Tonqua Bean,...........................2 "
Gum Benzoin,...........................1 part.

Reduce to a coarse powder, and exhaust with strong alcohol, (either by percolation or maceration), until twelve pints have been obtained, to this tincture add
Tincture of Opium,..............................4 parts.
Acetic Ether,...................................2 "
Lavender Water,...............................2 "
Mix. Age improves the flavor.

STRONG PASTE.

Add to two large tablespoonfuls of flour about twenty grains of powdered resin. Mix with strong beer and boil twenty minutes.

To keep paste from moulding, add fifteen grains of corrosive sublimate to each half pint.

BRASS POLISH.

Take of Rotten Stone, ℥ i.
Sulphuric Acid, ʒ i.
Alcohol, ℥ i.
Water, ℥ viii.
Oil Turpentine, ℥ i.

FINE SEALING WAX.

Take of Shellac,.................................48 parts.
Venice Turpentine,..........................12 "
Balsam Peru,.................................1 part.

Melt together with gentle heat and work into the mixture, Vermillion, 36 parts. Mould into sticks.

ANTI CHOLERA PILLS.

Take of Blue Mass,.....................................℥ i.
Morphia Sulph.,................................ʒ ss.
Powd. Camphor,..............................ʒ iii.
Mix and make 480 pills. Take one every hour until relieved.

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IMPROVED GLYCERINE CEMENT.

A cement of great value for many purposes, and capable of being used where resistence to both the action of water and to that of heat is required, is composed by mixing glycerine with dry litharge, so as to constitute a tough paste. For uniting the joints of steam pipes, and other similar applications, this preparation is said to be very satisfactory.

BLACK SALVE.

Take of Linseed Oil,	℥ iv.
Olive Oil,	℥ iv.
Red Oxide of Lead,	℥ ii.
Litharge,	℥ ii.

Mix the oils in a porcelain lined vessel, increase the heat until they will singe or curl up a feather, then gradually sift in the leads, stirring constantly until reduced to a hard salve, care being used not to burn it.

TRANSACTIONS OF PHARMACAL COLLEGES AND SOCIETIES.

AMERICAN PHARMACEUTICAL ASSOCIATION.

The 22nd annual meeting will be held in Liederkranz Hall, in the city of Louisville, Tuesday, September 8th, at 3 o'clock P. M. The following traveling arrangements have been made:

Free return tickets will be issued to those passing over the Louisville, New Albany and Chicago R. R., upon the certificate of the undersigned.

The Louisville and Great Southern R. R., and the Louisville and Nashville R. R., will sell excursion tickets at Memphis, Nashville, Clarksville, Atlanta and Bowling Green, to not less than five persons, said tickets to be indorsed by the undersigned.

The Ohio and Mississippi R. R., and Jeffersonville, Madison and Indianapolis R. R., will sell excursion tickets to the Louisville Industrial Exposition at half fare; tickets good for four days, may be prolonged.

The members from the Atlantic States it is proposed, will rendezvous at Baltimore, leaving that city by way of Baltimore and Ohio R. R., Saturday, September 5th, at 6.30 A. M., spending Sunday at Grafton and Parkersburg, reaching Cincinnati Monday at 4.50 P. M., and Louisville the same evening or Tuesday noon. It is intended to charter a Palace Car for this party if a sufficient number of applications ore received before September 1st. Returning, a trip over the Chesapeake and Ohio R. R., at a reduced rate is contemplated; particulars will be given at Louisville. Members intending to join the proposed excursion to the Mammoth Cave will report at the meeting.

Round trip tickets will be sold by the Chesapeake and Ohio R. R.

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to Cincinnati and back from Richmond, at $25; and from Washington, at $26.

Headquarters will be at the Galt House ($4.00 a day); good accommodations have also been provided at the Louisville Hotel at $3.50 a day.

Applications for membership should be addressed to the undersigned. Committee Reports and Papers will be received by Prof. Jos. P. Remington, Philadelphia. Business relating to the Pharmaceutical Exhibition will be attended to by Prof. E. Scheffer, Louisville.

Philadelphia, August, 1874. JOHN M. MAISCH,
Permanent Secretary

MEETING OF THE SOCIETY OF PHYSICIANS AND SURGEONS OF THE CITY OF CHICAGO.

At a meeting held by this society, August 11th, the following resolutions were unanimously adopted:

Whereas, The medical profession of Chicago, on several recent occasions, has been charged in *The Chicago Times* with collusion with pharmacists for the purpose of extorting money from their patients: and,

Whereas, This collusion is alleged to be effected in various ways: such as

1. The use of prescription papers bearing the business cards of pharmacists;
2. The occupation of offices free of or at nominal rents adjacent to or belonging to pharmacists;
3. The writing of private formulæ understood by certain pharmacists exclusively;
4. The acceptance of commissions upon prescriptions from pharmacists; and

Whereas, The practices above designated, although deprecated by many, always have been maintained by many others innocently and in good faith, unsuspicious of their abusive application; therefore, be it

Resolved, That the Society of Physicians and Surgeons of the City of Chicago recognize the fact that the practices above designated tend to the degradation and demoralization of the medical profession, to the diminution and withdrawal of public confidence upon which its existence depends.

Resolved, That the members of this society pledge themselves as individuals and as an organization to discontinue the practices above designated, so far as they may have adopted them, and to discountenance them in others so far as their influence may extend.

Resolved, That the society regards the acceptance of commissions upon prescriptions, by physicians, from pharmacists as positively disreputable and dishonest, and to be deemed a sufficient cause for the rejection of an applicant for, or the expulsion of a holder of membership herein.

Resolved, That a committee of three be appointed by the chair to co-operate with a similar committee from the Chicago College of Pharmacy (should such be appointed) in order to consider what, if any, measures are requisite in order to correct the great and growing evil in our midst of the prescribing of proprietary medicines, by name or otherwise, and of the accepting of samples of such medicines as are distributed and advertised in this city by the agents of eastern wholesale drug-houses. And that such joint committee (should concurrence be had) report in full to the society for such action in the premises as may seem to it desirable.

CHICAGO COLLEGE OF PHARMACY.

At a meeting of the Chicago College of Pharmacy, held August 20th, the following resolutions were by a unanimous vote adopted:

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Whereas, The object and aim of the Chicago College of Pharmacy has been to further the advancement of the art of pharmacy, to establish upon just principles the relations that exist between pharmacists, physicians, and the public, and to discourage the sales of inferior or adulterated drugs, chemicals, or pharmacal preparations; and,

Whereas, Certain allegations have been made in the public newspapers, and at a meeting of the Chicago Society of Physicians and Surgeons, these allegations were in a measure confirmed, that the practice prevailed in this city of druggists paying commissions in money or as office rent to physicians for the object of insuring the dispensing of their prescriptions, and it has been further alleged that abuses have resulted from the furnishing of prescription blanks by druggists to physicians, and from the prescribing and use of so-called proprietary medicines; and,

Whereas, The practice of paying commissions to physicians in any form is in direct opposition to the principles upon which this college was established, if not in violation of the strict wording of the code of ethics; it is, therefore,

Resolved, That the maintenance of just and honorable relations between physicians and druggists or pharmacists are matters of the highest import to our college, and we do not hesitate to condemn a system that substitutes a money consideration for just claims of merit and education.

Resolved, That we invite the assistance and co-operation of the medical profession, the medical societies, and especially the medical colleges, whose objects are in sympathy with our own, to aid us in our endeavors to emancipate our business from any evils and abuses which prevent and hinder its progress.

Resolved, That a committee of three be appointed by the president to confer with committees of the medical societies for the purpose of devising such remedies as to them shall seem desirable.

A committee of three was appointed to confer with a similar committee, appointed by the society of physicians and surgeons, and the Chicago medical society, relative to the matter contained in the above resolutions.

A committee of three was also appointed to draft formulas for the non-officinal preparations as a standard for this college. These formulas are to be submitted to the various medical societies of the city and also to the American Pharmaceutical association for adoption.

The following were appointed as delegates to the 22nd meeting of the American Pharmaceutical Association, to be held in the city of Louisville, Ky., on the 8th inst.: E. H. Sargent, Albert E. Ebert, Thos. N. Jamieson, Geo. Buck, Theo. H. Patterson.

MEETING OF THE RHODE ISLAND PHARMACEUTICAL ASSOCIATION.

An adjourned meeting of the registered pharmacists of the state, held at the rooms of the Providence Franklin Society on Saturday, July 25th, at 10 o'clock, A. M., Mr. A. L. Calder in the chair. W. E. Anthony was elected Secretary *pro tem.* The Committee on Constitution and By-Laws reported through their chairman, W. E. Anthony, a form of constitution and by-laws. On motion they were taken up by sections, read discussed and adopted.

On motion of Mr. W. B. Blanding it was voted that the gentlemen present sign the Constitution and By-Laws before proceeding to the election of officers. In accordance with this vote twenty-nine gentlemen enrolled themselves.

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The association thus formed proceeded to the election of officers. It was voted that no nominations be made, but that the officers be elected on blind ballot. The following was the result of the election:

President—A. L. Calder, Providence.

Vice President—James H. Taylor, Newport.

Secretary—Norman N. Mason, Providence.

Treasurer—W. E. Anthony, M. D., Providence.

Executive Committee—A. H. Field, Providence; F. J. Phillips, Providence; W. B. Blanding, Providence.

It was voted that the President have authority to furnish credentials to any members desiring to attend the meeting of the American Pharmaceutical Association.

The Executive Committee were authorized to furnish printed copies of the by-laws for the use of the members.

On motion of Mr. Phillips, the meeting adjourned to the 2d Monday in October.

W. E. ANTHONY, Secretary, *pro tem.*

THE BRITISH PHARMACEUTICAL CONFERENCE.

This Association of British Pharmacists held its eleventh annual meeting in the city of London, on the 5th, 6th and 7th of August, in the house of the Pharmaceutical Society of Great Britain, under the presidency of Mr. T. B. Groves, F. C. S. We glean the following abstract from the *London Pharmaceutical Journal:*

The attendance of members was large, delegations being present from the following local societies: Hulls, Leeds, Liverpool, Dundee, Bradford, Glasgow, Scarborough, Nottingham and Notts Chemists' Associations. Also from the Colchester Association of Chemists and Druggists, Manchester Chemist and Druggists' Association, Midland Counties Chemists' Association, Brighton Association of Pharmacy, Bristol Pharmaceutical Association and the North Branch of the British Pharmaceutical Society. Among the visitors were also present: Dr. DeVrij, from the Hague, Holland; M. Adrian and M. Gallois, Paris, France; Dr. Frazer and Professor Chas. R. C. Tichborne, from Dublin: Mr. E. T. Dobbins and Colonel J. W. Forney, from Philadelphia, U. S. Col. Forney on being introduced at the 2nd session of the conference, addressed the meeting in the characteristic "spread eagle style of a 4th of July orator," and no doubt must have somewhat edified if not amused our British colleagues listening to the bombast of an American politician. The following passage teems with deep inspiration and profound research: "Philadelphia was laid out by an Englishman, William Penn, who lies buried, I believe, in Buckinghamshire, and whose grave it is my intention to visit, so that I may there draw some inspiration from the memory of the founder of Pennsylvania." The contributions in way of scientific papers at this meeting, were both numerous and valuable, among which we note a paper by Dr. DeVrij, describing a new method of estimating the pharmacal value of cinchona barks. Prof. Flueckiger, of Strasburg, Germany, two papers:

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in one he reported having determined the deposit from essential oil of nutmegs, known generally as myristicon, to be really myristic acid; in the other he described the chemistry of elemi. Mr. Groves, the president, presented a continuation of his valuable researches upon the alkaloids of aconite. Mr. A. W. Gerrard presented an able report upon the officinial plasters of the British Pharmacopœia. The use of oleic acid in pharmacy was the subject of a valuable paper by Prof. Tichborne. Mr. Soddart described a modification of LIEBIG's process for the estimation of phosphoric acid. Mr. H. C. Baildon read a paper on Cortex Rhamnii Frangulae, and Mr. T. Greenish on Scammony. Hydrocyanic acid was commented upon by no less than four papers, contributed by Messrs. Proctor, Shenstone, Towerzey and Williams. The latter gentleman also contributing a paper on the proper vehicle for the administration of phosphorous. Mr. Barton read a paper on sarsaparilla root, and Mr. Haffenden one on the confections of pharmacy. Mr. Muir on potable water and its contaminations in house cisterns, and Mr. Daniels on the syrups of the phosphates. Prof. Wright contributed two papers, one on the essential oils of wormwood, citronella, and cajeput; and the other a continuation of his researches on the opium alkaloids. Mr. E. Smith suggested a method for the recovery of iodine from the waste in the preparation of iodoform. Mr. Heathfield sent some notes on the extracts of aconite, belladonna, hemlock, henbane and colchicum; and Mr. Schacht called attention to some experiments he is making to ascertain the relative proportion of comia present in the succus and extract of conium. The president, Mr. Groves, also read a paper describing his experience in the preparation of trimethylamine.

As a natural result the social feature of the gathering was a great success. On the first evening a conversazione was held at the rooms of the British Pharmaceutical Society, by invitation of the president and council of the society. The principle object of the evening being an exhibition of articles of interest in relation to pharmacy. The annual dinner took place on the evening of the second day's proceedings, about 150 members sat down to the bountiful repast, which being enlivened by music, singing, toasting, and speech-making could not have been otherwise than highly enjoyable. The last day was devoted to an excursion by boat down the valley of the river Thames, and thus was brought to a close the largest as well as one of the most interesting gatherings of British pharmacists. The next meeting is to take place at Brighton, again under the presidency of Mr. T. B. Groves. At one of the sessions of the meeting, our colleague and friend, Wm. Saunders, of London, Canada, was elected an honorary member of the conference.

From the Bureau of Education, Circulars of Information of the Bureau of Education. No. 1, 1874, being the *Proceedings of the Department of Superintendence* of the National Educational Association. Washington, 1874.

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The Pharmacist.

Vol. VII. CHICAGO, OCTOBER, 1874. No. 10.

SUGGESTIONS WITH REGARD TO CERTAIN ACTIVE MEDICINAL AGENTS.

BY JAMES I. TUCKER, M. D.

In my communication to the July number of The Pharmacist, I took occasion to state in substance that, in view of the fact that some physicians, especially those representing the present epoch in medical practice, had grown into the habit of frequently prescribing certain active medicinal agents, I thought a trituration of them united with a suitable excipient, much better than elixir, sugar-coated pill, or any other form. In other words, that the intimate union of arsenic, arsenious acid, strychnia, atropia, aconitine, cantharidin, tartrate of antimony and potash, bichloride of mercury, and the like, with sugar of milk, would generally be the best form for the clinical administration of such active agents, at the same time I added two other factors to the proposition namely, first, that these preparations should be made with scrupulous care and precision, in hours of comparative leisure, when sufficient time could be given to the extremely delicate manipulation necessary to a perfectly intimate co-mixture, and in no instance left to extemporaneous preparation, and secondly, that they be measured according to the plan which all over the civilized world is acknowledged to be the only rational one, of decimal gradation in weights and measures. Of course it would not be in keeping with the functions of a journal devoted to pharmacy, to discuss therein the propriety of administering such active medicants in disease. There must necessarily be a difference of opinion with regard to some of them. Suffice it to say that many physicians *do* prescribe them, and I apprehend the reason that others do not is because there has hitherto been no form in which they could be administered with perfect impunity. The recent developments if true, in reference to an elixir, said to contain strychnine, manufactured by a New York druggist, is sufficient evidence that such a dangerous ingredient cannot be safely used in the elixir form, and every physician is acquainted with the unsatisfactory results often following the administration of the much-vaunted sugar-coated pill and granule. Some of these active principles, it is true, may be dissolved in water, and other some can-

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not. It remains, therefore, to discover some form in which these others can be safely used, and the form I recommend, I think is the only eligible one which remains. In addition to the element of safety, which the editor of THE PHARMACIST frankly acknowledges, I commend these preparations because they certainly possess other elements of commendableness, which I do not think it would be difficult to demonstrate.

They are *safe*, because they have been prepared in hours of leisure, when they could be manipulated with scrupulous precision, and, afterwards, perhaps, submitted to microscopic examination.

That they are *elegant* is self-evident.

They are *simple* because they contain but one medicament.

They are *accurate* because they are weighed on your new pair of scales, adapted to the decimal system of weights and measures.

They are *ready* because they are always to be found, ready-made, in the prescription-case.

They are *efficacious* because they are the most active of agents, and most rapidly soluble in the digestive fluids, and absorbable almost immediately into the current of the circulation, approximating thus most closely to the hypodermic method.

They typify most surely modern therapeutics. Divided by tenths, hundredths, or thousandths, if need be, they are adapted to the youngest and feeblest of infants, or to the most robust of adults.

I am confident that these agents cannot be as safely prepared under the pressure of business, extemporaneously, as during the hours when ample time can be devoted to them, and ample time means *much* time in this relation. Must I then always wait until my prescription can be compounded? If so, what will become of my patient bellowing with the colic, or smothering with an asthma, rigid with a convulsion, delirious with uraemia, snoring with an apoplexy or dizzy with a constipation? Should not every possible delay be avoided under these circumstances and such as these? "But," I hear some ask, "why not use something else, doctor? I answer, supposing I prefer these if they can be promptly provided, or have fallen into the habit of using them, am I not entitled to them? And supposing it is impossible to *get down* a teaspoontul of medicine or a pill, but perfectly easy to dissolve a delicate powder upon the tongue? I speak from experience. I have failed in emergencies to obtain remedies with due promptitude, and that from representative Chicago druggists, for whom I cherish the profoundest respect.

One word about the criticism of your correspondent, Vogeler. I think if he has an eye to economy of space, he will still find room for this new "supernumerary." If not, I would suggest a remedy. First, remove from the "overburdened shelves," "Doctor" Walker's Vinegar Bitters; if then, there is too little, remove Mrs. Winslow's Soothing Syrup; if still you fail, continue to replace one by one such nostrums as these, which as one of the leading druggists of Chicago said to me the other day, cannot be sold over the druggists' counter without dishonoring his own profession, insulting the physician, and endangering the lives of the community. Remove these, I say, and

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replace them by preparations such as the lamented Parrish, and Procter, and physicians of like good standing are likely to endorse. I venture to predict that thereafter the crowded shelves will furnish ample capacity.

In conclusion, I desire to acknowledge the courtesy of THE PHARMACIST in inviting me to occupy still more space on its pages. I feel almost as if I was encroaching upon territory belonging exclusively to others, and yet so close is the relation between pharmacist and physician, that I was glad to accept the hospitality in this instance. My desire was "to have a little talk" about a matter, in which other physicians as well as myself are interested, and to take a forward step toward the attainment of the Simple, the Elegant, the Accurate, the Ready, the Safe and the Efficacious, fitted to the present and far removed from the galenical period.

ELEGANT PHARMACALS.

BY ADOLPH G. VOGELER.

The defects of our recently proposed semi-officinal elixirs have been so thoroughly ventilated, in the columns of the pharmaceutical journals, as to require no further discussion. The fact stands undisputed, still every pharmacist will strive to adhere to those formulas as long as they are to be considered authoritative. The most unfortunate results are obtained by the combination of citrate of iron with calisaya. Having become formally disgusted with those inky mixtures, I was on a fair way of returning to Mr. Diehl's formulas, when it occured to me that, by a slight change in manipulation, a product might be obtained in no way inferior to the latter gentleman's preparation, without materially altering the constitution of the elixir. It consists simply in detannizing the elixir of calisaya previous to adding any iron salts.

A trial-experiment was executed in the following manner: Twenty-two fl. drachms of tincture of cinchona were mixed with 3 fl. oz. of water and 2 fl. oz. of alcohol, (95 per cent.) and all cinchotannic acid removed by a sufficient quantity of fresh hydrated oxide of iron, produced according to Mr. R. Rother's directions. This latter preparation was deemed preferable on account of its containing comparatively so little water, and because it can be so easily washed. Meanwhile 15 m. of oil of orange, and 9 m. of oil of cinnamon, were dissolved in 2 fl. oz. of alcohol, and an equal volume of water added to this. After separating the tannate of iron, by means of an unplaited filter, this second liquid was poured over the magma and enough water employed to make both filtrates measure 12½ fl. oz. By adding 5 fl. oz. of syrup the elixir was completed.

Next I prepared some compound elixir in a similar manner, except that I employed simple elixir ready made, reserving about 3 fl. oz. for washing the magma.

The resulting products in both instances present a light yellow

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color; they are beautifully limpid, requiring no further treatment with paper pulp; have suffered no diminution in bitterness or aroma, and, as a matter of course, remain unaffected by salts of iron.

Now the question arises, whether we possess no authority to so improve upon these "elegant pharmacals" that they may not arouse in an unsophisticated patient's mind, suspicions of collusions between his family physician and the druggist, who has a desire to dispose of a super-abundant supply of Genuine Cox's Writing Fluid.

ON A METHOD OF REDUCING THE SALE OF PATENT MEDICINES.

BY E. GREGORY.

The enormous sale of so-called Patent Medicines is a fact well known to all members of the kindred professions of Medicine and Pharmacy, and is much deplored by every one who has at heart the best interests of mankind. The reason for such sales is difficult satisfactorily to assign, and still more difficult is it to propose a remedy that shall be at once effectual and popular. I propose to devote a little time, first, to a consideration of what I conceive to be the true reasons; and secondly to propose a remedy which shall aim at lessening this evil.

First, as to the reasons of such large sales. It has been the fashion to ascribe the whole success of patent medicines to the unscrupulous cupidity of makers and sellers of such articles, and to the verdant simplicity of buyers. But this, I think, is only part of the truth. Many makers and vendors of patent medicines are high-minded and honorable men, and many buyers and users are anything but simple. The makers claim that the intrinsic utility of the articles sold is the secret of their success; whilst their adversaries urge that impudence and lavish advertising are the main elements by which it is reached. I think both are partially right. There is a degree of utility in many such medicines; and no less is it true that advertising and unblushing lies have much to do with their sale. I have come to the conclusion that the popularity of quack medicines, and their consequent sale, proceeds from many causes, and not from one alone.

Many members of the farming community, and especially those who live in the newly-settled districts, have a long distance to go for medical aid. It may be six, ten, or even more hours before the doctor can arrive, and when he does come, it will be a serious draw upon their slender income to pay him his well-earned fee. These persons are good customers for patent medicines, for they have found by experience that a good rub with *relief*, or other preparation of that kind, will often relieve the oppressed chest, assist the sprained joint, or cut short the threatening croup. A timely dose, administered in a draught of water, frequently cures the commencing diarrhœa, or relieves the unpleasant cramp. We cannot blame these people for getting relief as cheaply and speedily as possible.

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In our towns and cities, poverty is a great cause of demand for these preparations. Poor people find it much cheaper to buy patent medicines than to run to the doctor for every little ailment.

Another cause which increases the demand, is the great convenience afforded to the druggist in conducting his business. A customer comes in who is troubled with a cough or a rheumatic pain. The druggist hands him down a bottle of pectoral medicine for the one, or a stimulating application for the other, and the patient is as well served as if the druggist had spent half an hour in compounding a bottle especially for the case.

Ancther reason—and I think the most melancholy one of all—is, that there are always people afflicted with incurable complaints, who are either doomed to life-long suffering, or are gradually but surely going down to the grave. These will not give up hope, but like drowning men, who catch at straws, fall a ready prey to the lying promises of the quack medicine men.

Of course, the energy and unscrupulousness of advertisers must count very largely as a cause of their success; but I think, without the other causes stated above, their frequent advertisements and big stories would have but a limited effect, for I have found that no medicine will sell for any length of time that has not in it some intrinsic excellence which makes it supply a public want. The most difficult part of the matter is to understand what inclines people to believe the astounding and improbable untruths that are published by some advertisers.

In the second place, I have to propose a remedy, and in this I feel somewhat diffident, as it is much easier to see an evil than to rectify it. However, I have thought the following plan might be serviceable:—I would have formulæ for a series of preparations intended to replace the various classes of patent medicines at present sold, compiled by the best skill that could be commanded, and inserted by a constitutional authority in our Pharmacopœia. These I would have put up in convenient packages, with a few simple and clear directions how to use them for the different classes of disease for which they were intended; stating also the symptoms of those diseases, and the stage at which they become serious, rendering it necessary to obtain medical aid. If a series of these preparations were placed in the market, I think, with the co-operation of respectable physicians and pharmacists, they would in time displace the ordinary quack medicines, at least with the more sensible portion of the community.

To crown all, I would, as soon as public sentiment could be educated up to the right point, get a law passed, prohibiting the sale of all proprietary medicines, unless the formulæ according to which they prepared were in some way made public property, and compelling every man to have in his possession, for exhibition to any physician who might require it, the formula for the preparation of every medicine he may have on his shelves for sale. Most likely it might be some years before the latter half of my scheme could be successfully carried out; but I see no reason why the first half could not be

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attempted at once by any of the well established pharmaceutical bodies.

The first step to be taken, I think, should be the compilation of a set of the necessary formulæ, which might be revised from time to time at the usual decennial revisions of the respective pharmacopœias. The next should be the issue of a counter hand-bill, setting forth to the public the advantage and intentions of the scheme, and explaining how often they are gulled by the quack medicine men. This is probably all that could be done for some time.

The Pharmacopœia of the United States has already made a step in this direction by publishing a formula for a "Compound Cathartic Pill;" and I may mention that in my own trade, this preparation, under the name of "Anti-bilious Pills" has very largely supplied the place of many proprietary pills. My scheme to some may perhaps seem a little visionary, but it proceeds on a sound principle, that of endeavoring to supply a public want by a better article than can now be found in the market. Hoping that it may be serviceable, I leave my suggestion to the consideration of those most interested.—*Canadian Pharm. Journal.*

ON THE APPLICATION OF OLEIC ACID TO PHARMACY.

BY PROFESSOR TICHBORNE (DUBLIN).

The object of this paper was to introduce to pharmacists the use of oleic acid in liniments and other preparations where soaps, which are alkaline salts of oleic acid, are now employed. The author confined his remarks entirely to liniments on this occasion, intimating, however, that there were many other pharmaceutical uses to which oleic acid could be advantageously applied, to a consideration of which he would recur on a future occasion.

The only important suggestion as to the use of oleic acid had been made by Dr. Attfield, who had proposed to dissolve alkaloids in this acid previously to combining them with cod liver oil. These preparations, however, are now no longer used, and therefore the suggestion has fallen through. But the method of dissolving any powerful alkaloid, such as aconitine, in oleic acid, when it has to be combined with a fatty body, as in the case of ung. aconitiæ, is a great improvement, inasmuch as we thus obtain a solution in the fat, and not a mere mechanical mixture.

The oleate of mercury which has been introduced, Professor Tichborne thought, would not be much used on account of its unsightly appearance.

Oleic acid, which not long ago was a chemical curiosity, is now to be obtained by tons, and very cheap. It is produced by the splitting up of palm or other oils into glycerine and the fatty acids. Stearic and the other hard acids are used in the manufacture of candles, and the fluid oleic acid remains as a by-product. The best is known as

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"pale cloth oil." There is also a brown German oleic acid which is extremely cheap, but much inferior in quality. A curious fact in respect to oleic acid is that, while it is itself poisonous, the oleates are quite harmless, providing the base is so. Rats and mice, though eager after all other neutral fats or oils, carefully avoid oleic acid.

After describing briefly the characteristics of the various oleates, Professor Tichborne gave the following formulæ for the various liniments of the Pharmacopœia.

Linimentum Ammoniæ.

In preference to the old formula, which produces an emulsion, changing gradually into a semi-solid soap, Professor Tichborne recommended the following:

Oleic Acid, ℥ j.
Water, ℥ ij.
Strong solution of Ammonia, ℥ ij.

Mix the water and oleic acid and add the solution of ammonia gradually but with agitation. This will yield a liniment of definite and unchangeable composition.

Lin. Potass. Iod. c Saponæ.

A very useful stimulating liniment, but most unmanageable in its present form. The following was proposed in its place:

Oleic Acid, 6 ozs.
Carbonate of Potassium, 2 ozs.
Iodide of Potassium, 7½ ozs.
Glycerine, 5 ozs.
Oil of Lemon, 5 drs.
Water, 2½ pts.
Solution of Potash, q s.

Dissolve the carbonate with heat in 10 ozs. of water, add the oleic acid, and when the effervescence has ceased add the remaining ingredients together, and then a sufficiency of solution of potash to make it of the requisite consistence.

Linimentum Saponis.

As a more perfect form for this much-abused liniment, Professor Tichborne suggested the following:

Oleic Acid, 8 ozs.
Carbonate of Sodium, 4 ozs.
Camphor, 5 ozs.
Oil Rosemary, 12 drams.
Rectified spirit, 3 pts. 12 ozs.
Water, 8 ozs.

Dissolve the carbonate in the water by the aid of heat, add gradually the oleic acid, and when the effervescence has subsided add the rosemary and the camphor dissolved in the spirit, and filter if necessary.

Certain liniments may be regarded as emulsions, of which Lin. Terebinth. is typical. In these cases oleic acid behaves beautifully. The following is the formula:

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Lin. Terebinth.

Oleic Acid, 1 oz.
Oil of Turpentine, 16 ozs.
Camphor, 1 oz.
Solution of Potash, q s.

Dissolve the camphor and oleic acid in the turpentine, and add gradually the solution of potash, until the whole is emulsified.

Professor Tichborne added that doubtless these formulæ might be improved upon, but he was confident that the days of the old forms were numbered. No one who now uses oleic acid in making the saponaceous liniments will wish to return to the soaps.

The Chairman, in proposing the customary vote of thanks regretted there had not been more time placed at Professor Tichborne's disposal, as the subject was well worthy of further elucidation at the Conference, and particularly of further experiment.

Mr. Fraser submitted the experience of the principal oculist in Glasgow to the Conference, and said that the use of oleic acid had been of very great service to the gentleman in the treatment of the particular class of disease which was under his charge.

Dr. Attfield said he could not accept all the credit that seemed to be given to him by Professor Tichborne. For several years after the paper on the method of dissolving alkaloids in oil was published, he had had the subject brought under his notice, but how this came about he really did not remember, but some one had stated some fifteen or twenty years ago that alkaloids could be dissolved in fatty acids.

Mr. G. F. Schacht said that although one might see the desirability of employing oleic acid in the place of olive oil in the manufacture of liniments, he could not help thinking that it would be very desirable in most cases that the definite compounds should be first of all prepared rather than that they should attempt to extemporise their preparation at the moment of use, for of course the chances would be that they would not get a perfectly neutral preparation, which in some cases might be most necessary. He wished to speak now upon the peculiar and, according to his experience, very useful preparation, the liniment of iodide of potassium, which he believed was understood to owe its paternity to the firm of Messrs. Smith & Co., of Cheltenham. There the good result was obtained by the use of one kind of soap containing very little of the oleate of soda but a very large proportion of the stearoptate of soda. The curd soap of the Messrs. Benbow was best. When that was used they certainly did have a capital preparation, and one which looked like a clotted cream more than like anything else. It maintained its consistency for a great number of months, as he could testify from experience. They could produce the same things invariably by simply using the same material. There was no disappointment whatever in it, and it made a delightful method of applying this remedy externally. Of course it was an open question whether very much good attended the external result, but if

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intended to be applied at all, this was a very elegant form in which to do it.

Mr. Umney remarked that the specimens of oleic acid with which the learned professor had been experimenting were far superior to the article of commerce sold under that name in England.

Dr. Attfield said that oleic acid was now used on an enormous scale (only it was much darker) by clothworkers. Oils and fats of many kinds which formerly were thrown away through being so impure as to be almost useless were now "recovered" as the phrase ran, and thus an immense amount of oleic acid came into trade, the better varieties commanding larger prices than the darker. Still there were large quantities of oleic acid of a light colour—far larger than were likely to be used in pharmacy.

Mr. Remington: Don't you think it would be objectionable on account of the persistency of its smell?

Mr. Hanbury observed that this was a case in which two sides had to be looked at, viz., cheapness and goodness.

Professor Redwood expressed his personal thanks to Professor Tichborne for having undertaken so many experiments in reference to this matter. Some time ago, indeed on more than one occasion, he had suggested to this Society the desirability of investigating the whole subject of the liniments used in pharmacy. He considered them to be in decidedly an unsatisfactory position, and that they were very much in want of some general principle upon which to proceed in their preparation. He entertained the hope that here they had a suggestion that might prove useful, and although it had been stated that the formulæ which had been put forward were not in a state of progress, and that there was room for further investigation on the subject, yet he was sure that the investigation would result in the enunciation of improved processes for liniments. He might mention one in particular, which was the liniment of turpentine and acetic acid—a liniment consisting of materials which separated and could not be kept united. He had made several experiments himself with the view of getting a more homogeneous liniment as a substitute for it, and there were several others. In fact, the whole of them required to be thoroughly revised, and he should be glad some day to see some general principle acted upon, and some menstruum adopted which should serve as a medium for the application of more active constituents. He looked rather hopefully to the use of oleic acid in this particular case.

Professor Tichborne then rose to reply to some of the observations which had been made. As to the purity of oleic acid one gentleman had said that it was a very common thing to introduce it as a substitute for soap. He must ask him if he had ever gone to a soap works and seen the funny things put in there? (Laughter.) If he did so he would find that soaps were much more indefinite than oleic acid. The acid on the table was a specimen of commercial oleic acid taken from an old cask of it, half an hour before he left home. In connection with liniments, all they had to do was with a peculiar condition of their solubility. He thought on repeating his experiments that they

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would be found as correct as applied to all oleic acid, and it was quite immaterial whether it was one month or twelve months old. There were, he knew, some very inferior German qualities—(hear, hear)—in the market, but they were introduced for rough work. He did not believe the smell would be any objection to its use.

Mr. Williams remarked that this must be a *very* old specimen, as the professor remarked, for he could not get any of it. (Laughter.) Oleic acid had become very bad lately, and it was most difficult to prepare those oleoids, so as to have them what they really ought to be. He had tried many experiments, and devised many plans of purifying it, but he must say that at present he had not at all succeeded to his own satisfaction. He believed there was a great future for oleic acid, and therefore he hoped that many present would turn their attention to it. At present the article in commerce going by that name was not good enough for pharmaceutical purposes.—*Chemist and Druggist. Read at a meeting of the British Phar. Conference*, '74.

CORRESPONDENCE.

Mr. Editor,—At the recent meeting of the A. P. A. in Louisville we were struck with the strange inconsistency which often appears in this class of meetings, where impulse takes the place of reason, if a sufficient cause provokes any one to lead the way. I have no intention or desire to champion either side of a question, which I think needs only to be calmly considered to demand a better, or at least a more fair decision. I refer to the emphatic manner in which the meeting refused to allow the merits of a patented apparatus, to be considered by the Executive Committee, in reference to publication in the annual proceedings. It may or it may not have had merit entitling it to publication; that question was not called for decision, but the proposition voted upon was to allow the publication in our proceedings of a description of such apparatus, *if deemed* of sufficient value by the publishing committee, without prejudice on account of being patented.

The resolution was resolutely tabled, and this was done in the interest of science, so declared. Only a few hours before a paper had been read, extolling in the most approved and modern style of patent medicine phrase, a patented nostrum for the cure of many ills; in fact, the cures also were duly recorded, and pharmacists "blandly" advised to "make a note" of its superior virtues. To our great surprise, this paper was duly referred for publication without questioning its propriety, although this epitome of "cosmos" was shown to be a very simple and easily prepared lubricator. There can be no doubt that the proprietors of this wonderful curative will at once proclaim its endorsement, "in the interest of science," by the A. P. A., and reap a golden harvest. That the medical nostrum should be so kindly received, and the mechanical device so rudely laid under the table, is one of the funny incidents peculiar to "scientific" legislation. Seriously, Mr. Editor, in view of several sadly absurd decisions which

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have been made at our meetings, might it not be well to provide for a previous consideration, by a committee in cool blood, of all propositions before presenting them to the open meeting. We cannot afford to appear ridiculous even "to support the dignity of the Association," and when members deserve expulsion it should be meted out to them without anger. "Our dignity" will be best preserved by *doing right* though the heavens fall. The question whether patented medical compounds and patented mechanical apparatus should be looked upon as equally unethical, seems to have been decided in the negative, with the nostrum one ahead on the last vote. If there is to be a distinction observed, I think their position should be reversed. Medical combinations are the peculiar work of the apothecary, and he should discourage all patents which tend to limit his productions. On the contrary, mechanical contrivances are better produced and at less cost by the inventor than by others, and their invention should be encouraged. A patent merely prevents other mechanics from stealing the rightful property of the inventor; and this principle applies as justly to a percolator as to a water wheel, the plain fact being that no one but the inventor will be at the expense of producing improved apparatus until through his efforts a profitable demand has been created, all of which involves questions of ethics quite unlike those pertaining to granular salts, elixirs, cosmoline *et ad nauseam.*

If the Association has made a mistake in this matter we hope some one will point out the better way to encourage, rather than dampen, the ardor of our inventive friends, who have hitherto proved of so much value to us, at the least secure to them FAIR PLAY.

THE HEAD OF THE CAMEL.

BY A MEMBER OF THE CHICAGO SOCIETY OF PHYSICIANS AND SURGEONS.

Hand in hand the physician and the apothecary have come down from ages the most remote to the present, always pretentiously the friends of their race, but not unfrequently proving as much its evil as its cure. But this has been the consequence of ignorance, now well nigh obsolete in the light of modern knowledge, until to-day the profession of medicine in many respects ranks highest as an intelligent and demonstrable science. The traditions, lore, and experiment upon which the modern superstructure of medical knowledge is based, have entailed upon it the three incidental conditions of antiquity, dignity and responsibility, and while the first is apparent, and the second conceded, the third and most important element of the three is in this fast age and careless country, too frequently dwarfed, if not altogether ignored. Physic and pharmacy should ever be twin sisters in the high privilege and paramount duty of imparting purity and intelligence to the profession of medicine, and in its elevation to the very highest possible standard. It has, however, become apparent of late that the physicians are not willing to carry their share of the burden in establishing the important essential of a high standard of pharmacy, leaving to the efforts of a few devoted and highly intelligent pharmacists, the perfecting of the valuable art of compounding drugs according to those formulæ recognized as best by the highest authorities. Medical men betray such utter indifference to all pharmaceutical matters, except those arising from free or partial office rent, commissions on prescriptions, and kindred interests, that it is impossible to ascribe it to any other

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causes than indifference and ignorance. The former is reprehensible in the highest degree, and the latter is more wide-spread than is generally suspected. The extraordinary extent to which practicing physicians depend upon the proprietary elixirs and other remedies with which the country is flooded by large manufacturing chemists in eastern cities, is to no inconsiderable extent the key to this condition of affairs, and it is with the view of bringing before the medical and pharmaceutical professions the pernicious evils worked in their own ranks and inflicted upon their patients, that the present analysis of the situation of the three parties involved—patient, physician and pharmacist—in the matter of prescribing the said proprietary elixirs, compounds and remedies, is submitted. And by the term "proprietary" remedies, it must be borne in mind that what are commonly known as patent medicines are not meant. Patent medicines are proprietary articles, of course, but all proprietary preparations are not patented. The preparations in question are elixirs and other compounds, manufactured for the profession by regular manufacturing chemists, and compounded, it is claimed, according to standard formulæ, which formulæ, notwithstanding the claims of the manufacturers to the contrary, are rarely if ever published, and what is more, in the belief of competent judges, rarely adhered to.

The relations which pharmacists sustain to physicians in our cities and smaller towns are intimate and essential. If these relations be studied with a view to determining their exact conditions, it will be found that the practicing physician relies on the druggist for his supply of the medicaments employed by him in the treatment of medical and surgical cases. As a rule, the patient, under the direction of his or her physician, applies to the pharmacist with a written order or prescription for the remedies required, and in this act there is the following responsible and three-fold demand made upon the druggist: He is required, first, to fill the order with drugs of the greatest purity; secondly, if several drugs are ordered in combination, to prepare them in exact quantities and with the skill of an educated pharmacist; and thirdly, to charge for the medicines ordered only a reasonable sum of money.

This third requisite, though largely implied, and not expressed, is admitted to involve one element which is not usually attached to the price paid for ordinary articles of barter. The cost of a prescription should not represent merely the cost of the medicines which it contains, as in the case of articles like clothing or food. It should contain in addition to this, the element which represents the professional skill requisite to prepare, compound and properly dispense articles whose improper use may prove fatal to human life—a skill only attainable by those who have spent time and money in its acquisition.

If the three-fold demand made in the order which is commonly termed a prescription be not faithfully met, the results are injurious to physician, pharmacist and patient. If the drugs are not pure, the physician loses faith in the action of his remedies, doubts his own competency to arrest or modify disease, loses the confidence of the public, and is tempted to wander into the uncertain paths of the empiric, and the pharmacist lays the foundation of financial ruin to his business. If the drugs be not compounded skillfully and accurately, though they are of the best quality, similar results will ensue. If the price is in excess of that amount which represents the two elements already described, the effect is equally evident, upon the two professions. The patient of moderate means is unable to fitly remunerate his physician if he has spent his surplus funds in payment for the medicines ordered by the prescription, and hesitates to return for advice respecting another phase of a, perhaps, dangerous ailment, lest additional expense be incurred. In this way a physician will lose a patient and the pharmacist probably a number of additional and subsequent prescriptions.

This is disastrous in more ways than one. When an individual prepares to purchase lands, goods, or privileges, he counts the cost. He enters into negotiations only when he is in a condition to liquidate the corresponding obligations. Men are prostrated by disease and obliged to consult their physicians at all times, and in emergencies, which are often those of financial embarrassment. They are often obliged to purchase medicines at a time when they are least prepared for such an expense. On such occasions it is of special importance to both professions that the services of each should be rendered at a price within the reach of those whose circumstances are temporarily straitened.

There is nothing new in all this. It is premised here in order that a distinct

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statement of the true relations between the two professions may precede the details which follow. It is intended here to demonstrate the fact, that within a few years past a practice has originated, encouraged by the physician and fostered by the pharmacist, which is bearing the following unequivocal results: First, the supplying of drugs which are impure and of inferior quality; secondly, their inaccurate and unskilful preparation; and thirdly, an enormous increase not of their cost, but of their price. This practice is the manufacture, advertising, prescription and sale of proprietary medicines. These are preparations of one or more drugs, manufactured and compounded by an individual or firm who attaches his or their business name to the article.

The formula according to which the medicine or medicines are ostensibly prepared is or is not furnished in whole or in part as is deemed expedient for the interests of the house. By the use of bottles of a peculiar shape or size, boxes of a special appearance, labels and wrappers bearing a device or trade-mark, which is often, and indeed, generally, protected by copyright, the manufacturers of these preparations so indentify themselves with their compounds as to reap a rich reward from their use as soon as their employment has become general.

We have at present neither time nor space in which to illustrate the history of the rise and progress of this so-called "elegant pharmacy," but will only sketch the operation of its influence as exerted in our midst to-day, and indicate the remedy for the evils which it has brought in its train. At present the largest production of proprietary medicines occurs in the great eastern cities of this country, though within a few years manufactories have been established in the smaller towns of many eastern and a few of the western states. It is an indisputable fact that many of the names which are as household words in the pharmacies of the south and west in consequence of their connection with extensively advertised proprietary medicines, are those to which no respect is accorded in the places where a long residence should have made them most entitled to it. One of the largest manufacturing firms of these nostrums in Philadelphia, was connected in such a manner with the frauds discovered in the medical department of the United States army during the war, that the then surgeon-general of the army lost his official position in consequence of their exposure. The so-called "elegant preparations" of this firm are sold nowhere in Philadelphia outside of their own establishment, though they are scattered broadcast throughout the country, and their sale is enormous.

Another noted firm of this type that has by the most persistent advertising in every conceivable way succeeded in forcing on the market several preparations of cod liver oil bearing their own name, sell but very little of it in New York city outside of their own drug stores.

In general it may be said that the manufacturers of proprietary medicines have not the confidence of the communities in which their establishments are located. In the language of one who has been the president of the American Pharmaceutical Association, "they go to a distance of one thousand miles from where they are best known, when they desire to extend the sale of their goods." As to the character of their manufactures it is safe to say, as a rule, that the medicines which they profess to incorporate with their preparations are either not incorporated at all, or are combined in proportions considerably less than those laid down in the formulæ. It should be remembered, that for the truth of their statements respecting the quality of their goods, the profession and the public have merely their word, backed by the emphatic puffing of their paid agents.

But the temptation to deviate from a rigid adherence to the regular and recognized formulæ must be well nigh irresistible as soon as the reputation of any one of them is firmly established, and it will be also remembered that no restrictions exist which can possibly prevent the glaring alteration of their formularies at will, to suit their own convenience or pocket. The public has no guarantee that the formula of to-day will be the actual formula of to-morrow, or if the formulæ be unchanged, that the temptation to make an extra twenty-five or fifty thousand dollars per annum, by a degradation of their standards and ingredients, will be successfully resisted.

But the public is not left in doubt in this matter. Again and again analytical chemists have shown that the proprietary medicines do not contain the ingredients the names of which appear on their labels. A well known professor of the medical art, resident in Brooklyn, and late assistant surgeon of the United States navy, has greatly interested himself in the supply of standard and pure drugs to the

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market. Not one of his preparations is advertised, nor distributed on sample, nor coupled by himself with his name. In a recent report to one of the N. Y. Medical societies, he reviewed exhaustively the whole subject of the qualities of the preparations here considered. He demonstrated, conlcusively, that it was in many cases chemically impossible for several ingredients to be present as such, in a single compound, whose proprietary name expressed such a union. He showed also that many of the doses recommended of these same preparations, could not by any possibility contain the quantity alleged to be present. He proved that sugar-coated pills, as a rule, are undigested in the stomach, and frequently pass through the body unaltered and exercising no medicinal effect. He showed that many admixtures claimed to be made with iron, were incompatible in the form under which they were presented to the public. In conclusion he used the following emphatic language: "Gentlemen," said he, "you think that such and such a preparation contains pepsin, bismuth, and strychnia; or iron, quinine, and phosphorus; but you are greatly mistaken. I will tell you what it contains, and what it does not contain. There is money in it, and nothing else!"

There is plenty of actual and every day proof in the medical profession that its members dare not rely in cases of emergency for the effects they want to produce instantly, upon these fanciful "elegancies." Every one who is familiar with the action of sulphate of quinine knows that the effect which is producible with a scruple of the salt, is unattainable, with ten two-grain sugar-coated pills. The profession does not trifle with these elegancies when speed and surety are in the balance. How soon do they resort to the muriated tincture of iron or some other standard preparation of the metal, when they desire to produce the effect of a tonic at once; nor would they dare, in a case of complete failure of nutrition, to trust to the dose of beef contained, or said to be contained, in one of the proprietary remedies.

These facts indicate the failure of the latter to establish themselves upon a sound basis in the confidence of the profession. But it is said that they are admissible in the lighter or less aggravated cases when a milder remedy will be useful. Surely their employment cannot be justified upon any such ground. It would be very much like the action of the farmer who, having cut a large hole in his barn door in order to admit his hens, subsequently cut a smaller one by its side in order to admit his newly-hatched "chicks."

Proprietary medicines are brought into the market at present in the following manner. A voluble agent is dispatched with a large quantity of samples to a distant town where he first resorts to the wholesale and retail druggists. In response to his inquiries the latter very soon inform him that they cannot purchase his goods unless assured of a demand for their sale, and the only way in which such a demand can be created is by securing the ordering and prescribing of their medicaments by the members of the medical faculty. Forthwith the agent proceeds to the offices of the physicians in that locality, not only those who belong to the regular prosession, but to all irregular practitioners, homœpathists, quacks, advertising specialists, and others of every denomination. To each of all these he sets forth the special merits of the remedies he has for sale and thereupon distributes samples of his goods in neatly blown bottles, or tastily fabricated cases. He is particularly eloquent in regard to the advantages possessed by him who uses them in his practice, over him who does not. The elegance of his preparations will offset the advantages claimed by the homœopathists in their peculiar mode of administering pellets of sugar if they are used by the regular practitioner. For the homœopathist, they will present means whereby to administer the remedies of the so-called regular school, in a form acceptable to his patients who cannot tolerate the huge boluses and nauseating mixtures of their past experience. He does not ask them to buy, and this is the strongest part of the argument; he asks them merely to try the samples, and order "X and Q's" elixir as often as possible thereafter.

His measures thus taken are acceptable and effective. The physician tastes the preparations and his palate is tickled with the sherry they contain, compounded with some agreeable and aromatic tincture. There is doubtless a trace of iron or strychnia, or quinine in the taste, and that is sufficient to allay all suspicion. He orders some for his first patients who present themselves, and who seem to require a gentle stimulant and tonic. The prescription for "X and Q's" elixir goes to the retail drug store. The druggist resorts to the wholesale dealer, who at once enters the demand upon his order book. The wholesale trade is everywhere sensi

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tive to demand. It thrives best when most completely in accord with the wants of those whom it supplies. A gross of the needed article is ordered from the manufacturer, and, thereafter, a new line of of goods is regularly ordered, regularly supplied, and regularly advertised in their extensive price lists.

Meantime the manufacturers are not idle. Advertisements are inserted by the year in all of the medical journals. The latter are issued to the medical men of the country, at present, in such a form that the valuable reading matter which they contain is almost buried under the leaves which set forth the virtues of the proprietary pills, capsules, and extracts at present in the market. A scientific observation of value is like a grain of wheat in a bushel of worthless chaff. Nor is this the extent of the evil. Editors are liberally paid to prostitute their columns by advertising the claims of proprietary medicines by editorial puffs. Medical correspondents are stimulated by rewards to write cases in which some certain remedy or remedies have been employed and the successful results obtained attributed to their use. These articles are perused by more innocent and more conscientious men, who do not dream of the motive which prompted their production, and therefore unsuspiciously digest the mass which was intended for the pocket and not for the stomach. Many other resources are employed; circulars, dose-books, sugar-coated pill paper-weights, attractive cards, etc., are spread over the country. The art of the engraver, the lithographer, and the ornate publisher is exhausted in the production of their effects. The names of hundreds of physicians whose medical education, practice and respectability are generally questionable, and whose names are always unknown to fame, are appended to their widely distributed circulars, with certificates to the effect that in their opinion it is an excellent remedial agent, and, indeed, that in their vicinity there is scarcely any other remedy employed. These circulars are forwarded to every man in each large centre of industry, whose name appears in the directories under the head of "physicians," and "X and Q's" elixir is soon established on a firm foundation.

Stimulated by their success "Y and Z" enter the arena and produce similar remedies, with some claimed improvement upon those manufactured by their rivals. There is no need to go over the same ground in the description of their course. The same sort of voluble agent leaves the same samples for the physician; there is another order upon the druggist; another upon the wholesale house, another gross or more from the manufacturer. There is positively no limit to the list; one succeeds another with a certain and calculable regularity.

Granular salts come into fashion, and a legion of agents present the claims of a hundred different kinds of granular salts, and meantime the wholesale and retail drug dealers become loaded down with stocks of proprietary medicines.

The effect of this traffic upon the wholesale dealer is disastrous. He is already carrying a stock of goods whose very name causes a shudder in the hearing of conscientious and well-informed medical men. He deals in the deadly poison of "soothing syrups;" the drastic "mandrake pills;" the vile compound known as "vinegar bitters," and the still viler "golden discoveries." In addition to these he must invest in proprietary medicines.

These two classes of goods make up on an average fully one-half of his stock. One-sixth of the remainder consists of paints, oils, and glass; one-sixth, of perfumery, toilet articles, and druggists' sundries; and the slim remainder, of the drugs which once gave name and standing to his business, and which should constitute the staple of his trade. Is it any wonder that he becomes so careless of his reputation as a vendor of medicines? He loses the consideration of the retail dealers who still demand such articles, and this number is unfortunately not the largest proportion of them. Some retail druggists in this city, whose prescription cases are to them an object of the first care, import directly from New York and Philadelphia through houses there, who confine themselves exclusively to putting up staple drugs of the finest class, while the wholesale dealers of the city are resorted to merely for the purpose of obtaining patent and proprietary medicines. These wholesale dealers content themselves with handling bottles and their contents, and making their profits solely through the difference between wholesale and retail prices. What is the result? Our large jobbers in clothing and other common staples, after twenty years of business, have retired with fortunes, or are still trading as merchant princes, controlling and moulding the destinies of commerce. Wholesale dealers in drugs, on the other hand, after handling millions of dollars' worth of goods for a quarter of a century, are to-day still

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engaged in the same business, and their available assets would not amount, on an average, to one hundred thousand dollars for each firm in our city. Those who have been enriched are the patentees and proprietors of these so-called standard remedies and preparations that are mere nostrums, who have, after but a few years, been enabled to build luxurious mansions in the capitals of the East, and are to-day sailing their swift yachts on our seaboard, or squandering large sums upon the gaming-tables of Europe.

The effect upon the retail dealer is similar. Placed under the necessity of carrying all the varieties of proprietary medicines which manufacturers may create or physicians order, he degenerates into what an eminent druggist of the city has called "a mere middle man." He, too, hands the "ready-made prescription" to his customer over the counter, and makes the small profit left to him by the many others who have previously handled it. The skill and judgment once possessed in an eminent degree by the profession to which he belongs, and for which it has been justly famed, is neglected or lost. In order to remunerate himself for the idle capital locked up in his sealed bottles and packages, he is obliged to charge two and three prices for the simplest prescription, and thus the weight of the whole injury falls upon the innocent. In addition to this, he too often yields to the temptation to usurp the functions of the physician, and falls into the disgraceful and unprofessional habit of prescribing over the counter. The "ready-made prescription" is at hand; it is only necessary to recommend it, and its sale and consequent profit to him is secured.

The result to the patient is different. He soon finds that his physician orders his medicine in the form of what has been here called "ready-made prescriptions." "Surely," he says, "there is no necessity for me to pay him in order to direct me simply what to purchase." Accordingly, he prescribes for himself, purchases his own sugar-coated cathartic and quinine pills, buys his own granular salts, and invests for himself in elixirs of iron, quinine, and strychnia. He dispenses altogether with the services of his medical adviser, and under such circumstances he is sensible in doing so, for a very little address and care will enable him to compete upon equal ground with a physician whose judgment is simply a child-like reliance upon some manufacturer. He treats his catarrh with a "catarrh cure," files his corns with a Japanese file, and treats his child's whooping-cough with cincho-quinine, "recommended by the faculty." This is rendered all the more easy by the labels of the mannfacturer, which, in many instances, prescribe the dose of the preparation as well as its ingredients, and the diseases for which it is to be employed.

The result of this condition to the medical profession is equally disastrous. The surgeon allows no adventurer to guide his hand in the use of the knife; the obstetrician permits no finger of a half-educated midwife to interfere with his own in the vaginal touch. But, although this is the case indisputably, yet the physician who stands in the line of historical succession with Hippocrates, Cullen and Boerhaave, stands to-day at the bedside of his patient, while Mephistopheles, as the genius of the drug manufacturer, dictates in his ear what he shall give, and in what form he shall order it.

It is an axiom in political economy that the consumer pays for all the elements that enter into price. An illustration may present this more forcibly. A physician prescribes for a man of moderate means, and orders for him a proprietary elixir. The patient remains ill for some time, and finally, thanks to the *vis medicatrix naturae*, he regains his health after a liberal consumption of various preparations, manufactured in a foreign city, but prescribed by the home physician. He pays the druggist first, because he knows that what he has consumed has cost the druggist an outlay of actual money. The consumer pays the whole bill, as far as he is concerned, for the creation of these proprietary remedies—his quota of traveling, advertising, billing, puffing, lithographing; he pays his quota of the hotel bills of the agent with the voluble tongue and frank countenance; he pays his quota even of the neat package of samples left in his physician's office. He then goes to his medical adviser, with a depleted purse, and pays him half his bill in money, and the other half in irredeemable promises to pay. There is a stern justice in his conduct. He is the unconscious Nemesis, avenging himself upon the author of this evil in an appointed way.

But this is not all. There is another aspect in which to view it; another picture, perhaps the most touching of all. Take the case of the wife of a hard-

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laboring man, earning in these times of stringency but one dollar and a half per day. Her infant is sick, and she thinks but little of the last two dollars in her scanty purse if she can by its aid purchase for her child a new lease of health. She pays one dollar to her physician for prescribing a grain of calomel in twelve powders rubbed up with a little sugar, and when she comes to the druggist her powders cost her forty cents. She looks with dismay at the sixty cents handed her in change of her last dollar. Why should this simple medicine cost her so much? She does not know, but she counts the cost, and is compelled by sheer poverty, when her child is again sick, to neglect to summon a physician till all hope of its recovery is at an end. But the physician and the druggist know only too well why her simple prescription costs her so much; and if the physician sins in this regard, for the sake of the poor let it be hoped he sins unwittingly. He has compelled his druggist to keep in stock twelve different kinds of cod-liver oil, which cost $3 per dozen, and are retailed at $12. The remaining $9 represents agents, advertising, hotel bills, inquiry, and samples; and the druggist, in order to carry them all safely and pay his house and store rent, charges the despairing mother 400 per cent. for simple calomel powders.

It would be out of place here to enlarge to any extent upon the terribly-demoralizing influences of the practices described upon the members of the medical profession. There cannot but result a loss of true *esprit du corps* and self-respect in a body which permits its judgment to be clouded by the ingenious sophistries of men who are intent solely upon manufacturing articles for the largest possible profits, honestly or dishonestly acquired. Nor is it necessary to refer to the pernicious effects resulting from such practices upon a large class of young medical practitioners but recently from the schools, the best of whom have had but little time and occasion to become thoroughly familiar with the materia medica, and who supplement their scanty knowledge by resorting wholesale to the "ready-made" prescriptions of the manufacturse of "elegant pharmacy."

Perhaps enough has been said to establish the proposition laid down at the outset, viz.: That the prescribing of proprietary medicines has gradually brought about a condition of affairs, in which there is less purity of drugs, less accuracy in compounding them, and a vast and unnecessary increase in the cost of the prescriptions by which they are ordered.

The remedy for the evil is so patent to the understanding that it barely deserves mention. Once let the medical profession refuse to admit manufacturers' agents to a hearing, reject their profered samples, and invariably order only such medicines as are divorced from the names of proprietors and copyright-holders, and the evil will be at once reached and checked. The wholesale and retail druggists will take care that they have in stock a good supply of the best drugs in the market, and will purchase only those manufactured articles which earn for themselves a justly-deserved reputation for excellence and purity. Manufacture will not cease, but drug houses will lay such a business foundation as those establishments possess which have for years supplied standard articles in other branches of trade, and whose advertisements have never yet seen the light of day, and whose agents stay at home. The medical journals would, of course, in such a case lose a valuable source of profit, and reach their readers less burdened with the clap-trap of the advertiser. Those which at present eke out a precarious existence on the nutriment supplied them from this channel, may in that case be known no more. But that will be but a small loss both to the profession and the world.

The report of the committee on medical literature in the 24th volume of the transactions of the American Medical Association states that the "number of journals devoted to medicine in this country exceeds that of every other, and is equal to that of Great Britain and France combined, if not of all Europe united. The superabundance of such journals is the chief source of the defects complained of and illustrated here. The support that would render a dozen vigorous, divided among at least four times that number, is barely sufficient to keep a majority alive. The support every way is manifestly, as to the most of them, altogether inadequate." Much more is said to the same effect, and is it matter for wonder that the weaklings among them eagerly seize upon the unwholesome morsels thrown out to them by the pill and elixir-vendors, whose pockets the subscribers to such journals assist in stuffing? Is it to be wondered at, that such sheets publish editorials and correspondence for which they receive pay at so much per line, describing the merits of certain compounds of drugs, to which are inevitably affixed

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a firm name? Should a winnowing of such chaff occur, the result will be that only those journals will be maintained which rely exclusively for their success upon their intrinsic merit. It will be the issue which is produced by the operation of all untrammelled natural laws, the survival of the fittest. Such, and such only, are worthy of the confidence of the profession, or worth the price of subscription.

The members of the medical profession have certainly to confess their sins in the regards set forth, if they make an honest, upright, and thorough réview of the whole case. But they are not without some excuse for their careless and extremely unprofessional practices as related. It is rare that those who sit in the council chamber can long resist the importunities of a powerful, rich, and unscrupulous lobby. While the medical man has been intent upon some of the most puzzling problems submitted to the human understanding, the unscrupulous and gabbling manufacturer or agent has almost blocked up the avenue to his chamber of deliberation, and interfered with free ingress or egress. These vulgar vampires have had a powerful ally in the purpose dominant in the mind of every true physician. He is often brought face to face with diseases before which he is absolutely powerless. He often stands at the bedside of his patient, dissatisfied and despairing, while the ghoul of disease, the enemy of his race, pursues his fell career of destruction. How natural that he should wish to multiply all available resources—to seek for new and better agencies whereby to obtain a mastery over the subtle influences of the life poisons.

In conclusion, in reference to this unprofessional and unsafe method of prescribing compounded remedies, it may be remarked that if a deviation from a good conservative rule is justified by proved wisdom based upon successful experiment, then such deviation may be a powerful lever for good; but if those who might intelligently avail themselves of it, abandon themselves to its unrestrained license, then its ultimate result will entail a miserable and cruel bondage upon all amenable to its action. Then, and then only, when it is too late for freedom from its enthralling indignities, will it be felt that, after all, "the old was the better."

There is a fable of the Orientals which narrates that a camel once attempted to gain entrance to the tent of his Arab master. He only asked permission to first insert his head beneath the folds of the tent. But after the head came one foot, and then another, and finally a third, until the animal was in full possession of the tent, and the Arab excluded from his dwelling, and forced to lie upon the arid sands of the desert.

The members of the medical profession have allowed "the Head of the Camel" to invade their most sacred retreat. Will they also suffer themselves to be finally excluded from their hereditary home?

TRANSACTIONS OF PHARMACAL COLLEGES AND SOCIETIES.

AMERICAN PHARMACEUTICAL ASSOCIATION—TWENTY-SECOND ANNUAL MEETING.

The twenty-second annual session of the American Pharmaceutical Association commenced at the hall of the Liederkranz building, in the city of Louisville, Ky, at three o'clock Tuesday afternoon, September 8th.

The Association was called to order by the President, John F. Hancock, of Baltimore, Md. John M. Maisch of Philadelphia, the permanent secretary attending to the duties of his office. In the absence of the chairman of the executive committee, Mr. George W. Kennedy, of Pottsville, Pa., was appointed by the chair to act as chairman of the executive committee. Messrs. Paul Balluff, of New York city, George Roberts, of Baltimore, and Wm. Saunders, of London, Ont., were appointed a committee on credentials, who subsequently reported the following Colleges of Pharmacy and Pharmacal Societies duly represented by the following delegates:

Chicago College of Pharmacy—E. H. Sargent, Albert E. Ebert, Thomas N. Jamieson, C. Gilbert Wheeler, and Geo. Buck.

Louisville College of Pharmacy—E. Scheffer, V. R. Davis, S. F. Dawes, F. C. Miller, and W. W. Smith.

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Tennessee College of Pharmacy, Nashville—J. H. Safford, Thomas Black, A. S. Wilse, J. D. Kerley, and Benjamin Lillard.

Cincinnati College of Pharmacy—J. F. Judge, T. L. A. Greve, J. D. Wells, Charles Faust, and Geo. Eger.

National College of Pharmacy, Washington, D. C.—W. S. Thompson, J. A. Milburn, G. G. C. Simms, J. R. Major, R. B. Ferguson.

N. Y. College of Pharmacy—Paul Balluff, G. Rampsperger, Wm. Neergaard, M. L. M. Peixotto, P. W. Bedford.

Alumni Asssociation, N. Y. College of Pharmacy—Wm. Wright, Jr., Philip A. White, Hampden Osborne, P. W. Bedford.

Massachusetts College of Pharmacy—Samuel M. Colcord, A. R. Bayley, G. F. H. Markoe, B. F. Stacy, J. Bartlett Patten.

Alumni Association, Massachusetts College of Pharmacy—Chas. A. Tufts, J. P. Orne, Thos. Doliber, Jeremiah T. Leary, Ed. H. Boyden.

Maryland College of Pharmacy—J. F. Hancock, Joseph Roberts, J. F. Moore F. Hassencamp, L. Dohme.

Philadelphia College of Pharmacy—W. H. Pile, J. P. Remington, Alonzo Robbins, Henry N. Rittenhouse, Jos. L. Lemberger.

Alumni Association, Philadelphia College of Pharmacy—Richard V. Mattison, George W. Kennedy, Adolph W. Miller, George A. Newman, C. B. Allaire.

New Hampshire Pharmaceutical Association—Charles A. Tufts, Jos. H. Thatcher, Charles F. E. Hildreth, George S. Underhill, Charles T. Eastman.

Indianapolis Pharmaceutical Association—Walter S. Brown, Emil Martin, H. B. Cole George W. Sloan, Ross W. Perry.

Ontario (Canada) College of Pharmacy—William Saunders.

Literary and Scientific Society of New York—Paul Balluff, G. Rampsberger, E. Eimer.

New Jersey Pharmaceutical Association—E. P. Nicholds, A. J. White, R. W. Vandervoort, G. A. Mangold, P. W. Lovering.

Newark (N. J.) Pharmaceutical Association—C. W. Badger, C. H. Dalrymple, A. M. Mills, Ernest Dreher. Charles Holzhauer.

Lexington Pharmaceutical Association—Jno. S Wilson, — Richardson, H. A. Ridgely, T. B. Wood, Jno. J. Frost.

Richmond Pharmaceutical Association—H. Blair, Polk Miller, T. Roberts Baker, Ira W. Blunt, Henry Bodecker.

St. Clair Pharmaceutical Association of Southern Illinois—William Fleckert, Wm. Kempf, Jr., A. G. F. Streit, Chas. Muelheims.

Washington Pharmaceutical Association—Wm. P. Baldus, Ed. M. Taber, Chas. S. Price, J. T. Cole, Geo. R. Reynolds.

NEW MEMBERS ELECTED.

L. A. Fraupton, W. A. Gibson, C. O. Michaelis, C. F. Pankin, Charleston, S. C.; Thos. W. Powell, Houston, Texas; E. B. Hemstreet, Janesville, Wis.; Fred. S. Senier, Alfred Senier, Mazomanie, Wis.; H. C. Hisner, Ft. Wayne, Ind.; W. H. Griffith. Oil City, Pa.; Henry A. Bovrell, Geo. J. McKelway, Wallace Procter, C. C. Spannagel, Chas. L. Mitchell, Philadelphia; Geo. W. Arman, Ed. S. Burnham, A. W. Eckel, Charleston, S. C.; Thos. J. Finney, Wheeling, W. Va.; W. F. Punch, Mobile, Ala.; Frank C. Dale, Logansport, Ind.; W. C. Burton, Terre Haute, Ind.; Alexander King, Buffalo, New York; Jas. L. Bilorn, Sand Bank, New York; L. Myers Conner, Dallas, Texas; W. G. Schmidt, James McAfee, E. Woodruff, Arthur Peter, W. Rogers, Gotthold E. Bell, Louisville, Ky.; John J. Frost, Lexington, Ky.; Aubrey W. Peck, Mt. Vernon, New York; M. Falke, N. Y.; Wm. P. Thompson, Baltimore; E. W. Close, N. Y.; W. N. Harlow, Orange, N. Y.; Warren Smith, Chicopee, N. Y.; Chas. Palden, Springfield, Mass.; Hy. Kilhom, Louisville; Franklin Harper, Madison, Ind.; Louis Miller, Mt. Holly, N. J.; H. B. Chamberlain, Syracuse, N. Y.; George W. Ballard, Utica, N. Y.; Jas. McDonigall, Port Jervis, N. Y.; John W. Howarth, Utica, N. Y.; C. J. Lawler, Brooklyn, N. Y.; Henry Schmid, N. Y.; F. Singebach, Louisville; C. Christian, Washington, D. C.; Edmund Rocking, Wheeling, Va.: H. A. Pfingst, Ed. C. Pfingst, Louisville; Henry B. Foster, Concord, N. H.; Parker J. Noyes, Lancaster, N. H.; Alonzo T. Pinkham, Dover, N. H.; Ben. F. Rackley, Dover, N. H.; Louis Lehn, N. Y.; Charles S. Eastman, Concord, N. H.; George C. Underhill, oncord, N. H.; W. H. Vickery, Dover, N. H .

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Charles A. Smith, Springfield, Ohio; Cyrus W. Mobley, Louisville, Ky.; Edward H, Buehler, New York city; John Ball, Ironton, Ohio; August H. Vordick, St. Louis, No.; Vermont Hatfield, Middletown, Ohio, were balloted for and elected. The following were then appointed as the

NOMINATING COMMITTEE.

Wm. H. Pile, of the Philadelphia College of Pharmacy; Samuel M. Colcord, of the Mass. College of Pharmacy; M. L. M. Peixotto, of the College of Pharmacy of the city of New York; J. Faris Moore, of the Maryland College of Pharmacy; Albert E. Ebert, of the Chicago College of Pharmacy; E. Scheffer, of the Louisville College of Pharmacy; Wm. S. Thompson, of the National College of Pharmacy; J. F. Judge, of the Cincinnati College of Pharmacy; Benj. Lillard, of the Tennessee College of Pharmacy; Wm. Sanders, of the Ontario College of Pharmacy; George W. Kennedy, of the Alumni Association of the Philadelphia College of Pharmacy; Wm. P. Wright, of the Alumni Association of the College of Pharmacy of the city of New York; J. P. Orne, of the Alumni Association of the Mass. College of Pharmacy; Chas. A. Tufts, of the New Hampshire Pharmaceutical Association; A. G. P. Streit, of the St. Clair Pharmaceutical Association of Southern Illinois; Wm. B. Baldus, of the Washington Pharmaceutical Association; E. Eimer, of the Literary and Scientific Society of the city of New York; Ira W. Blunt, of the Richmond Pharmaceutical Association; Jno. J. Frost, of the Lexington Pharmaceutical Association; George W. Sloan, of the Indianapolis Pharmaceutical Association; A. J. White, of the New Jersey Pharmaceutical Association. *At Large*—W. F. Nick, Erie, Pa.; A. S. Lane, Rochester, New York; Chas. Heinitsh, Lancaster, Pa.; Gust. Mallinckrodt, St. Louis.

An invitation to the members of the Association to visit the Louisville Industrial Exposition was tendered by the secretary, E. A. Maginness, which was accepted with thanks.

The Association tendered an invitation to Dr. J. Lawrence Smith, and the medical profession of the city of Louisville, to seats in convention, and take part in the deliberations of the Association.

Messrs. James T. King, T. N. Jamieson, A. R. Bailey, Clay W. Holmes and Vincent R. Davis, were appointed as the committee on specimens, who subsequently brought in their report, which not being complete, further time was granted them to finish for publication.

The report of the executive committee and secretary was read by the secretary, after which that of the treasurer, who reported that there was a surplus of over nine hundred dollars in the treasury.

The session was then closed by the president reading his annual address, which was an able review of the progress of pharmacy during the last year It also contained many valuable suggestions for the future welfare of the Association, and a vote of thanks were tendered him by the meeting. The president's address with the report of the executive committee, and that of the secretary, were referred to a committee. The Association then adjourned until 9 o'clock Wednesday morning.

SECOND DAY'S PROCEEDINGS

The Association re-assembled at 9 o'clock Wednesday morning. President Hancock presiding. After reading of the minutes by the secretary, the nominating committee submitted the following report:

President—C. Lewis Diehl, Louisville, Ky.

Vice Presidents—Joseph Roberts, Baltimore, Md.; William T. Wenzell, San Francisco, Cal.; Augustus R. Bailey, Boston, Mass.

Treasurer—Charles A. Tufts, Dover, N. H.

Permanent Secretary—John M. Maisch, Philadelphia, Pa.

Reporter on Progress of Pharmacy—C. Lewis Diehl, Louisville, Ky.

Executive Committee—Geo. W. Kennedy, chairman, Pottsville, Pa.; Wm. McIntyre, Philadelphia, Pa.; J. L. Lemberger, Lebanon, Pa.; Chas. A. Heinitsh, Lancaster, Pa.

Committee on Drug Market—William Wright, Jr., New York; John Muth, Baltimore, Md.; Emil Scheffer, Louisville, Ky.; Wm. F. Horton, Boston, Mass.; John Calvert, San Francisco, Cal.

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Committee on Papers and Queries—Wm. Saunders, London, Ontario; John F. Judge, Cincinnati, Ohio; W. S. Thompson, Washington, D. C.

Business Committee—E. H. Sargent, Chicago, Ill.; T. Roberts Baker, Richmond, Va.; Wm. H. Eagle, Harrisburg, Pa.

Committee on Unofficinal Formulas—Richard V. Mattison, Philadelphia, Pa.

Committee on Adulteration and Sophistication—Adolph W. Miller, chairman, Philadelphia, Pa.; M. L. Peixotto, New York; J. R. Mercein, Jersey City, N. J.

Committee on Legislation—John M. Maisch, Philadelphia, Pa.; T. L. A. Greve, Cincinnati, Ohio; R. B. Ferguson, Washington, D. C.; Geo. J. Luhn, Charleston, S. C.; A. G. F. Streit, Belleville, Ill., S. S. Garrigues, East Saginaw, Michigan.

Committee on Liquor Dealers' License of Apothecaries—F. Hassencamp, Baltimore, Md., chairman; Jas. S. Robinson, Memphis, Tenn.; W. T, Baldus, Washington, D. C.; John Colgan, Louisville, Ky.; E. C. Jones, Philadelphia, Pa.

Commit'ee on Infringement of Stamp Tax—Oscar Oldberg, Washington, D. C.; J. Faris Moore, Baltimore, Md.; Herman Vogelbach, Philadelphia, Pa.

Committee on Photographic Album—P. W. Bedford, chairman, New York; J. S. Kirkbride, St. Louis, Mo.; John A. Milburn, Washington, D. C.; George H. Schafer, Ft. Madison, Iowa; Benjamin Lillard, Nashville, Tenn.

Committee on Ebert Prize—Charles Bullock, chairman; Wilson H. Pile, John M. Maisch, Philadelphia, Pa.

Permanent Committee on the Pharmacopœia—P. W. Bedford, chairman, New York; George F. H. Markoe, Boston, Mass.; Alfred B. Taylor, Philadelphia, Pa.; J. Faris Moore, Baltimore, Md.; Albert E. Ebert, Chicago, Ill.; Wm. H. Crawford, St. Louis, Mo.: Jas. C. Wharton, Nashville, Tenn.; C. Lewis Diehl, Louisville, Ky.; Richard Stabler, Washington, D. C.; John F. Judge, Cincinnati, Ohio; C. H. Dalrymple, Morristown, N. J.; Chas. A. Tufts, Dover, N. H.; Wm Saunders, London, Ontario; Paul Balluff, New York.

C. Lewis Diehl, the newly-elected president, was conducted to the chair by Messrs. Gordon and Moore. President Diehl, on taking the chair, made a few brief remarks expressive of his thanks for the distinguished honor conferred upon him by the association.

A vote of thanks was offered the retiring officers for the able manner in which they had discharged the duties of their positions.

The report of the Committee on the Drug Market was submitted by the chairman, P. W. Bedford, New York.

Also, the report of the Committee on Adulteration and Sophistication of Drugs, by its chairman, Charles Rice, of New York city, was accepted and referred for publication. We append a few interesting extracts from this document.

How to Insure the Purity of the Drug Market.—It should be the aim of this Association to stand guard over the quality of all substances relating to pharmacy, and to seek out and denounce all frauds. To do this properly, a committee should not only gather all information obtainable from others, but should especially direct their attention to some prominent staple articles, obtaining samples at various places, and carefully examining or analyzing them.

To represent the actual state of the market, samples should be purchased anonymously by confidential and discreet agents, appointed for certain districts, say one for each State, who could send their samples to said committee for examination.

This plan is, no doubt, susceptible of improvement, but if it were carried out it would, in the course of time, develop a central bureau for the detection of adulterations, and result in the establishment of a museum, with all the facilities and appliances for conducting these necessary experiments. Thus would be secured to our people a portion of the benefits which England derives from its "Adulteration act."

The report is divided under three heads: first, crude drugs and commercial products; second, chemicals and pharmaceutical preparations; and third, miscellaneous substances.

We shall, however, notice but few articles under the above captions.

Crude Drugs and Commercial Products,—*Balsam of Fir.*—Under the name "Oregon Balsam of Fir" an oleo-resin has, during the last year, appeared in commerce. Prof. Maisch could not trace this drug beyond New York. It is a thick, transparent, bright, brown liquid, of a turpentine and aromatic odor. On

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rubbing it between the fingers, different odors become apparent, and last of all, that of nutmegs. It is probably a solution of resin in oil of turpentine, flavored with the oil of *Eucalyptus globulus*, and the essential oil of nutmegs.

Balsam of Peru—Reference was also made to the Balsam of Peru as having been found adulterated with liquid storax.

Dandelion—The essayist also called attention to the fact that chicory had been foisted upon the market as dandelion root, and of that spurious article a so-called officinal fluid extract of dandelion had been prepared and sold for the genuine preparation.

Ginger—Attention was also called to samples of "bleached ginger" (Jamaica ginger), which was found to be common or American ginger, white-washed and dusted over with plaster of Paris.

Infants' Powder—He also spoke of what is commonly called "infants' dusting powder," which, instead of being the true lycopodium, was nothing more than the pollen of the pine.

Linseed Oil—As used for manufacturing printers' ink, has been found adulterated with codliver oil, previously made almost odorless.

Olive Oil—Much of the Italian olive oil used for table purposes was said to be only oil made at home.

Rhubarb—Reference was also made to rhubarb, of the common variety, being rubbed with turmeric to give it the fine light yellow color of the Turkey species.

Chemical and Pharmaceutical Preparations.—*Acids*—In regard to the three minerals—nitric, muriatic and sulphuric—the latter is the only one found generally pure. The impurities of the commercial acetic, citric, tartaric and other acids were dwelt upon and clearly illustrated.

Citrate of Magnesium—The substitution, or at least admixture, of tartrate of soda is as common as ever. The necessity of accurate knowledge upon this and other matters, as insisted upon in England, was couched in an incident in the case of a druggist in England, who, having a call for some granular citrate of magnesium, bought two pounds from a neighbor, and sold one-fourth of a pound over the counter immediately. On analysis, this was found to contain citric and tartaric acids, carbonate of sodium and sugar. His defense, that he had sold it as he had bought it, and had had no time to analyze it, was of no avail, and he was accordingly fined ten pounds and costs.

Cream of Tartar—The usual impurities are still reported; among others, carbonate of magnesium, salt and starch.

Miscellaneous Substances.—The British papers and journals are full of reports and trials under the "Adulteration of Food act," for selling adulterated articles of consumption, such as tea, coffee, mustard, butter, flour, pepper, cocoa, jams, bread, etc., etc.

Butter—This was found to be adulterated with lard, drippings, tallow, palm oil, and oils or fats from certain seeds.

Flour—The great staple was found sometimes to contain alum, as much as ten per cent.

Extract of Meat—Mr. Thos. Williams found fifty grains of red lead in a can of South American extract; said can having been painted red to give it a more showy and salable appearance.

Port Wine—To detect spurious port wine, add to a portion of it in a test-tube an equal volume of amylic alcohol, and shake. The upper layer will assume a more or less characteristic pink or purple color. Genuine port wine yields no color to fusel oil. The poisonous matters used to color wine may produce fatal effects.

REPORT OF COMMITTEE ON LEGISLATION.

The report of the Committee on Legislation was read by the chairman, Secretary Maisch. This was in reference to various laws passed by the Legislatures of several States, in regard to the regulation of pharmacy, which were reported to be succeeding well; this being especially the case with reference to the States of Alabama, Kentucky and Missouri.

ANSWERS TO QUERIES.

Adolph W. Miller, of Philadelphia, read an essay in answer to Query No. 1: American extract of liquorice is regarded, by a recent investigator, as of supe-

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rior quality, and is found to yield a large per centage to water. Does not such extract contain an admixture of gum or dextrin?

The investigator stated that the American article was as free from admixture as the best imported brands.

Query number four was replied to verbally by P. W. Bedford, New York, which was in reference to the impurities of the commercial sulphate of potassium.

The reply to query number eleven, accepted by Charles Rice, was read by G. Ramsperger, New York. It was in reference to the various processes of preparing oleate of mercury, giving a practical process for its preparation.

The answer to query number twelve, by Charles Bullock, of Philadelphia, in reference to the preparation of the various bromides of organic and inorganic bases used in American pharmacy, was continued.

Query number thirteen, concerning the relative quantity of extract of quassia, as prepared with water and diluted alcohol, was answered by Joseph S. Whall, Boston, Mass. The author found no advantage in using diluted alcohol as a menstruum.

Query number nineteen, concerning the advantages of making suppositories by molding, over the method of making them by hand, was answered by George W. Kennedy, of Pottsville, Pa. He reported in favor of making suppositories by hand, inasmuch as a more perfect shape could be imparted, whereas by the molding process the suppositories were too apt to cling to the molds, and have their shape interfered with. There was a great deal of discussion, pro and con, with reference to the respective advantages of the hand and mold methods of making suppositories.

A motion to adjourn until 3 o'clock P. M. was carried.

AFTERNOON SESSION.

The afternoon session was convened at three o'clock, President C. Lewis Diehl in the chair. Reading of essays was again taken up.

The sixteenth query—What is the most desirable solution of quinia for hypodermic injection? was answered by A. P. Sharp, of Baltimore, Md.

The fifth query—What is cincho-quinine? was answered by Albert E. Ebert, of Chicago.

Query twenty-second—Does water extract all the purgative principles of rhubarb, and is the alcoholic percolate of rhubarb, after its exhaustion with water, inert? Was answered by Charles A. Heinitsh, Lancaster, Pa. The author showed that water did not take up all the purgative principles of rhubarb.

An essay on the active constituents of bitter orange peel, with special reference to the bitter principles, was submitted by R. H. Stabler, Alexandria, Va.

Query twenty-six—There is a petroleum product called cosmoline, having claims to considerable merit. Can its claims be established by experience, and to what pharmaceutical uses can it be put? Answered by Joseph L. Lemberger, Lebanon, Pa.

From the nature of the essay, one would be led to judge that this product of petroleum was destined to displace every article in the apothecary's shop, so many are the diseases which it has been instrumental in curing. There seems to be no question, however, that it is a very useful remedial agent in the cure of skin diseases, and as a base for all the popular ointments. It gave rise to a lengthy discussion, in which paraffine came in for a share of the glory, and was shown that the same product can be produced by mixing paraffin in proper proportion with the heavy oils of petroleum, therefore it is not necessary for the pharmacist to purchase cosmoline at the exhorbitant price asked for it by the patentee.

Seventeenth query—Why do some of the diluted phosphoric acids of the market form precipitates with tincture of chloride of iron, while others do not? Answered by Louis Dohme, of Baltimore. The author attributed the presence of pyrophoric acid, as the cause of the precipitate. The subject was continued to him for further investigation.

Query twenty-nine—What preference is shown to graduates in pharmacy, as compared with non-graduates, and how do their salaries compare? Answered verbally by P. Balluff, New York City.

Query thirty—How do the salaries of drug clerks compare with the salaries of clerks in other business, and with those of skilled mechanics? H. N. Rittenhoose, Philadelphia. He thought on the whole they were rather underpaid.

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Report of Auditing Committee—The Auditing Committee reported that the books of the treasurer were correct in every particular, and commended the able manner in which the financial affairs of the association have been conducted. Report adopted.

Query thirty-one was read—Can statistics be obtained of the number of druggists in the United States, and can they be classified into a few general classes? B. F. Stacey, Charlestown, Mass. Received and referred for publication.

Query thirty-three—What is the quality of the iron by hydrogen in the market? J. L. A. Creuse, Brooklyn, N. Y. Received and referred for publication.

Query thirty-four—What is the state of purity of commercial santonin obtained from various sources? Frederick Hoffman, New York. The reply was read, accepted and referred for publication.

A motion to adjourn till 9 o'clock to-morrow morning was carried.

THIRD DAY'S PROCEEDINGS.

The association was called to order by President Diehl.

The committee on president's address submitted the following report:

The committee to whom was referred the consideration of the president's address and the report of the permanent secretary, after due deliberation upon both papers, would respectfully offer the following:

Resolved, That the thanks of the association are eminently due and are hereby offered to the retiring president for his able and exhaustive address, covering so wide a field and embodying, as it does, objects of such vital importance to the pharmaceutical profession at large.

Resolved, That the officers of this Association be empowered to enter into correspondence with any international body that may have been created, for the purpose of attempting a unification of the plan upon which the different pharmacopœias have been constructed.

Resolved, That the Executive Committee, with the approval of the president and treasurer, be empowered to publish annually, with the proceedings, the likeness of one or more of our departed members, and that for the forthcoming volume our much lamented friend, Prof. William Procter Jr., be selected.

Resolved, That a committee of three be appointed by the president to report at our next meeting upon the feasibility of the publication of a table of maxium doses, and to devise a plan by means of which physicians can distinctly indicate unusually large doses in their prescriptions.

Resolved, That a committee of three be appointed by the president to report at our next annual meeting upon the suggestion of our late president in reference to furnishing copies of papers read at our meetings to pharmaceutical journals in advance of their publication in the proceedings.

Resolved, That the members of this association are earnestly requested to call the attention of their neighboring pharmacists to the aims and objects of the association, and use strenuous efforts to induce them to become members.

Query thirty-five—An essay on granulated effervescent compounds was read by Mr. R. V. Mattison, of Philadelphia.

The gist of this essay was that the granulated effervescing compounds representing the various mineral waters were more agreeable to the taste and more speedy in effect on account of the concentration of the dose; for instance, a heaping teaspoonful of the granulated salts, representing a quart of water of Crab Orchard springs, would certainly be more convenient of administration, more pleasant, and certainly more speedy in its results. The essayist, however, gave no formulas for the preparation of these saline preparations, and the whole subject was accordingly referred to the committee on unofficinal formulas.

Query eight—Powdered blue mass: What is an easy and convenient mode of preparing a mercurial powder to fully represent the officinal blue pill? was answered by John F. Hancock, Baltimore, Md.

A general discussion followed the reading of this paper, in which the idea of reducing mercury to any condition of dry powder was objected to, inasmuch as mercury in this condition, after a lapse of time, would become oxidized, and a corrosive mercury be formed as the result of the chemical change.

The majority seemed to be in favor of doing away with any formula prescribing mercury in the state of powder, and adhering to that relating to the composition of blue mass.

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The query was continued to the essayist for further and more complete investigation.

Query forty-one, with reference to the preservation of garlic, was answered by Wallace Procter. He suggested that it could not be better preserved than by being hung up in a dry, cool place.

Prof. J. Lawrence Smith being present, was requested to favor the meeting with a few remarks.

The request was complied with by Professor Smith, who, after dwelling upon the improvements in pharmacy, begged leave to suggest that a memorial fund be subscribed to by every pharmacist in the land in order to erect a monument to the memory of Liebig, the father of organic chemistry—a testimonial of the regard in which his life-long labors are held, not only by the profession alone, but by every lover of science.

Prof. Smith said he had been authorized to superintend the raising of the American memorial fund.

A motion was carried authorizing the appointment of a committee of three from this association to act in concert with the National Chemical Committee. The committee are Paul Balluff, J. F. Hancock and Albert E. Ebert.

An invitation from Prof. D. W. Yandell to visit the medical department of the University of Louisville this afternoon was respectfully declined for want of time.

The following committee on maximum doses was appointed by the chair: William Saunders, Louis Dohme and W. H. Pile.

Also one on "Publication of papers in advance of proceedings;" A. W. Miller, J. F. Hancock and Ottmar Eberbach.

An invitation from Prof. J. Lawrence Smith to an entertainment to be given at his residence, was accepted, and thanks returned.

Query forty-three—Does the acknowledged value of colchicum, and its liability to vary in activity, suggest the preparation of a working formula for medicinal colchicia as a new pharmaceutical? Answered by Ottmar Eberbach, Ann Arbor, Mich. The author of this essay stated that the alkaloid colchicia present in the seed was so very small, about .25 of one per cent., that it was too expensive to bring into practical use.

Query forty-eight—A paper was submitted by J. M. Ayer, of Cincinnati, entitled: "An essay on cleanliness as a pharmaceutical virtue, and specially on the means and methods of cleaning bottles, mortars, and vessels of all kinds in daily or occasional use."

In this essay it appeared that the next best thing to godliness was the judicious use of soap and water.

Query fifty-one, concerning the strength and purity of the so-called chemically pure mineral acids of the different manufacturers, was answered by P. W. Bedford, New York.

Query fifty-two, concerning the value of pokeroot and berries in the treatment of rheumatism and the peculiar curative principle attributed to them, was answered by Charles C. Fredigke, Chicago.

Adjourned till 3 o'clock P. M.

AFTERNOON SESSION.

The association was called to order by Vice President Joseph Roberts, of Baltimore.

The minutes of the morning session were read, and, on motion, adopted.

Mr. William Saunders, of London, Ont., submitted the following resolution, which was adopted:

Resolved, That in view of the great loss which this association has sustained in the death of one of its founders, Professor Wm. Procter, of Philadelphia, we desire now to express and place on record our heartfelt sorrow at this sad event, which has deprived us of the presence and valued counsels of one of our best beloved members; and while recognizing with tenderest memory his great worth and lifelong labors in the interests of pharmacy, wish by this resolution to render a spontaneous and grateful tribute to one who has ever been ready to lend a helping hand in every good work, and whose genial social qualities and unvarying kindness to any who needed help, as well as his great scientific attainments, had endeared him to us all; and while fondly cherishing his memory, would convey our tenderest spmpathies to his bereaved family.

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Resolved, That this resolution be published in the next volume of the proceedings, and that the Secretary be requested to transmit a copy to his family, signed by the officers of the association.

A resolution nominating Boston as the next place for the annual meeting of the association, was amended by the substitution of Toronto, Canada, on behalf of the Toronto College of Pharmacy.

Mr. Ebert said that the Association had already met in the city of Boston some three times, and had seen everything there that was worth looking at; that merely for a change he was in favor of going to Toronto, and receiving the hospitalities of the Canadian colleagues.

Professor Maisch expressed himself in favor of meeting in Boston. since the Association had not met there since 1865. He said that he should like very much to have a meeting in Canada, but, as there will be much domestic business to transact September, 1875, he thought the Association might compromise on Boston, and that the mere fact of its having been there before should not operate as an objection, because the people there were liberal-minded, and would feel highly honored to have the convention meet there, not once more, but as often as practicable.

Joseph P. Remington seconded the appeal of Professor Maisch in favor of Boston.

Mr. Ebert again objected to Boston, for, were the members to meet there, they would have such a reception as would make them regret that they could not always meet there. He was in favor of going to a strange place, for when the Association met in Richmond, Va., as total strangers to the people and their customs, they were nevertheless so fortunate as to have the best meeting they had had in ten years. Now we have done for Boston and Boston has done for us, mutually; now let us make a break and go up to the city of Toronto. We ought to go just where we may do the most good. Let us go among strangers, and try to disseminate the good our association is apt to do; for that reason, if for no other, I heartily endorse the suggestion to go to Toronto.

Mr. Hancock preferred to go to Boston, and afterwards to Canada.

The Toronto amendment, on being put to vote, was lost by a vote of twenty-nine to sixteen; but when Boston was proposed as the place for the next annual meeting, the vote was unanimously in its favor. It was decided then to meet there on the first Tuesday of September, 1875.

The Committee on Business proposed the following changes in the by-laws:

That the salary of the permanent secretary of the Association be changed from $500 to $600 per annum.

That the annual salary of the treasurer of the Association be increased from $300 tc $400.

That section eleventh, requiring the delivery of the president's annual report as the closing feature of the first session, be stricken out, and that the said address be delivered immediately after the appointment of the Committee on Credentials; at the close of which address the said committee shall make their report, when the order of business shall proceed as heretofore. These changes were adopted.

Mr. S. A. P. Shepherd, of Boston, was elected local secretary.

A motion by Professor Maisch to insert in section seventh, chapter eighth, after the word "officers" the words "standing committees" was adopted.

A resolution was offered by Mr. George H. Schaffer, in which a plan was submitted whereby Uncle Sam might be induced to "let up" on the liquor tax; but wiser heads, who knew the old gentleman intimately, combatted this idea, and it was in consequence abandoned as impracticable.

C. Lewis Diehl presented a full report on the progress of pharmacy during the past year. It was gotten up with a great deal of care, and proved equally as valuable as the former reports contributed by this reporter.

The Committee on Photographic Album reported that there had been received but thirty pictures during the last year.

The meeting then adjourned until 9 o'clock Friday morning.

FOURTH DAY'S PROCEEDINGS.

The Association was called to order by President Diehl at 9 o'clock.

The answer to query No. 46 (Is chicory made use of as an adulterant of, or

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substitute for, American dandelion?) was received by mail from C. L. Rice, and read by Mr. Remington.

An essay on Veratrum Viride was offered as an effort in competition for the Ebert prize by Mr. Charles L. Mitchell, of Philadelphia.

PROMENADE CONCERT.

An invitation was extended by the Liederkranz Society for the association to attend a promenade concert to take place at Woodland Garden at 8 o'clock P. M. Accepted.

A very interesting voluntary paper was read James R. Mercien, of Jersey City, N. J., entitled "Home-made Chemicals."

ANTIQUITY OF THE CRAFT.

An essay on the antiquity of the apothecaries' craft and title, by Mr. J. Bartlett Patten, was read. We quote a few extracts:

"The very old and respectable term apothecary, borrowed by the Greek, naturalized into English, and associated with the practice of medicine all along as a collector, confectioner, and dispenser of drugs, is so applicable, so convenient, and so endeared to our memories, that, like the words Bible and church, none other should be found to take its place.

"The earliest mention of the word is by Moses, Exodus xx, 34-37. It is true Moses did not write Greek, but the Hebrew word *rakah* (pronounced rakach) employed by him—a word which is commonly translated apothecary in the Greek version made by order of Ptolemy Philadelphus one hundred and eighty-five years before the nativity of Christ, and in the first translation of the Septuagint into the English by Sir C. L. Brenton, this word is rendered 'perfumer,' which office was and is one special department of the apothecary's calling, from the fact that in our author's translation, and in the earlier versions of the same Scripture, the word *rakah* is rendered apothecary.

"It would seem that the business of the perfumer was not distinguished from that of an apothecary at the time of the translation. Thus Shakspeare, a cotemporary of King James' translators, says: 'An ounce of civet, good apothecary, to sweeten mine imagination.'

"In the life of Aristotle, who lived four hundred years before Christ, it is stated that he served some time in an herbalist or drug establishment in Athens. We know but little of the materia medica of those days, but it seems to have been almost entirely vegetable, which, indeed, was the case down to the time of Paracelsus, who introduced the medical use of mercury and several other minerals, together with a variety of elixirs.

"The first pharmacopœia on record was published in the year 49 B. C.

"In the golden and silver ages of the Roman Empire great advancements were made in pharmacy, and some valuable points discovered, which are still retained in our modern pharmacopœias.

"Previous to the fourth century the apothecary and the physician were sometimes combined in one man, as in the case of the distinguished Galen, who kept a druggist's shop at Rome.

"It was not until the fourth century, however, that pharmacy became a distinct branch of medicine. With the decline and fall of the Roman Empire, science and learning became nearly extinct in Western Europe, and, as a result, superstition and blind empiricism prevailed, and pharmacy made no progress.

"But in the East—particularly at Alexandria, Egypt—chemistry and pharmacy were cultivated with assiduity, and the apothecaries were a numerous body, respected for their learning and high social position, under the protection and strict supervision of the government.

"The first renewal of medical science in the West, after the dark ages, was in Salerno, where arose a celebrated school in the eighth century, and from that time apothecaries began to be numerous throughout Europe.

"The first attempt to supersede the time-honored name of apothecary, in the United States, was made in the city of Philadelphia in 1859 by Mr. Blair, who devised the name of 'pharmaceutist,' hitherto unknown to lexicographers, and displayed it at full length upon his sign. This excited much comment at the time among the pharmaceutical profession, who thought it somewhat pretentious, if not a compromise with quackery itself, while some of the rural non-professionals were

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absolutely deluded into the belief that the name over the door represented some imported wild animal that was on exhibition within.

"But all sorts of stories are too often told at the expense of an individual or a movement that seeks an advance upon time-honored precedents, and should be received, therefore, with many grains of allowance."

An essay on the process of preparing bromide of ammonium, phosphoretted resin, and still another on specific gravity, were read by Dr. W. H. Pile, of Philadelphia. Referred for publication.

Opium Fraud Exposed.—Mr. Ebert, of Chicago, in an essay, exposed the fraud "American opium." As compared with the imported article it was proven to be inefficacious. The samples which were given to Professor Procter and Dr. Squibb were no doubt made up, and consequently elicited an unwitting commendation from those eminent gentlemen, who did not suspect any attempt at a fraud. On the strength of their recommendation many druggists were induced to purchase it, actuated by a desire to encourage home production, as well as to save money.

Mr. Mattison and other members of the association testified to the truth of the foregoing statements.

The thanks of the Association were tendered to Messrs. Ebert and Mattison for their prompt efforts in exposing this fraud.

Mr. John F. Hancock, Chairman of Committee on Unofficial Formulas, read a number of formulas, which he submitted to thorough practical tests, embracing tinctures, elixirs, ointments, etc. Received and ordered to be published.

Mr. Ebert presented a communication from the Chicago College of Pharmacy concerning the preparations of the different elixirs. Referred to the proper committee, which was instructed to report to the Association at its next annual meeting.

The Chair appointed the following gentlemen to serve as a Committee on Formulas for Elixirs: Wm. McIntyre, Richard V. Mattison, and George H. Kennedy.

Mr. John F. Hancock exhibited a percolating apparatus, and offered to read an essay descriptive of its peculiar merits; but as the apparatus was covered by a patent, it was ruled by the Chair that the said essay could not be included in a published account of the minutes of the Association.

The patentee claimed for this apparatus a more effectual displacement of the virtues of any drug or compound submitted for maceration or gradual percolation.

A suggestion was submitted to the Association that at the Centennial Exhibition in Philadelphia, 1876, a pharmaceutical store be set up in a style commensurate with the advance of American pharmacy, with all the elegancies compatible therewith. This communication, from Mr. W. C. Bakes, was laid upon the table.

A resolution submitted by Mr. J. F. Hancock, to the effect that patented pharmaceutical apparatus shall not, like patent medicines, be excluded from the consideration of the Association, and that a report and illustration of the same be allowed in the printed proceedings, if such be deemed of sufficient importance, was laid upon the table.

Patent Nostrums.—Another resolution excluding foreign patent or proprietary medicines and nostrums from consideration by the Association was passed unanimously.

Report of the Business Committee.—*Resolved*, That the thanks of the visiting members of the American Pharmaceutical Association are due and are hereby tendered to our brethren of Louisville for the courteous reception that they have extended to us; that to them is due the fact that our meeting will rank amongst the most pleasurable that we have ever attended.

Resolved, That the thanks of the American Pharmaceutical Association are hereby tendered to the press of Louisville for the exact and fair reports they have made of our proceedings.

Mr. Remington, chairman of the committee on notes and queries, then read his report comprising the list of queries accepted and to be reported upon at the next annual meeting. The list numbers forty-three new, and fifteen continued queries.

A motion to adjourn until the first Tuesday in September, 1875, in the city of Boston, at threee o'clock P. M., was carried unanimously.

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ALUMNI ASSOCIATION OF THE CHICAGO COLLEGE OF PHARMACY.

At a meeting of the graduates of the Chicago College of Pharmacy, held September 8th, 1874, for the purpose of organizing an Alumni Association, the constitution and by-laws were read and adopted, and the following graduates were elected officers: President, F. M. Goodman; Vice-President, A. G. Vögeler; Treasurer, G. H. Ackerman; Secretary, H. W. Buchman; Executive Committee, C. M. Ford, J. Rohrer, J. Rosenthal, E. L. Stahl, Jr.

EDITORIAL.

The annual pharmacal gathering has come and gone, and we are home again, and at our old tricks in supplying mankind with elegant and inelegant remedies as the occasion may demand. It is really marvelous how readily we get back again into the harness of routine life. We have had a really good meeting and a really good time, yet for all that we are right glad to get home again. This is no doubt the feeling of all those who participated in the Louisville meeting. The gathering, although not as largely attended as some previous ones, was in every other respect a success. Many papers of interest were read, and the discussions which ensued were more generally participated in by the members, than at previous meetings; this is a good feature and we hope it may be continued, as it adds unusual value to the subjects submitted, and the meeting is more interesting and enjoyable for this general expression of individual sentiments and experiences in matters pertaining to our calling.

One of the most useful contributions was a volunteer paper titled "Home Made Chemicals," by Jas. R. Mercein. His exhibition comprising fine specimens of the salts of lithia, lead, iron and mercury; bromide of ammonium, and Bonjean's ergotine. We hope that in future this feature may frequently find imitators, as independent of its adding to the attractiveness of the annual exhibition, it lends an additional value as well as interest to the paper when read, practically illustrating "home manufacture," and the advantages to be derived both in price and quality, and the useful knowledge of the details of the manipulations acquired in the prodution of the preparations.

Another paper read by Mr. J. F. Hancock, on "Powdered Blue Mass," opened a field for further observation and investigation. The question arose, is it the finely divided metalic mercury, or the oxide of mercury, to which the preparation blue mass owes its medicinal properties? The *pros* and *cons* seemed about equally divided, and we hope that further investigation may lead to the recommendation that both the pilular and powdered Blue Mass be discarded from the list of medicinal preparations, as it is not safe that remedies, the composition of which are so indefinite, should be in so frequent use as medicinal agents.

Mr. Louis Dohme in answer to query No. 17, threw some light upon what has been to some, a troublesome problem. The author attributing the presence of *Pyrophosphoric acid* in the specimens which produce with the solutions of chloride of iron a precipitate. In

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connection with this subject the practicibility of the second process of the Pharmacopœia for the production of the *Diluted Tribasic Phosphoric Acid* was questioned, and reference was made to Mr. Littleton Thompson's process, published in the May number of THE PHARMACIST. Mr. Dohme requesting further time for investigation, the whole suject was continued to him to be reported upon at the next annual meeting. The following was presented by Mr. Clay W. Holmes, as a practical and superior formula for emulsionizing and administering *castor oil:*

Take of Gum Arabic, powdered,................One troy ounce
Simple Syrup,
Glycerin, of each,....................One fluid ounce.
Castor Oil,.........................Six fluid ounces.
Water,...........................Three fluid ounces.
Essence of Vanilla,
Brandy, of each,.....................One fluidrachm.
Oil of Cinnamon,.......................Five drops.

Misce fiat emulsio, lege artis.

A paper that produced considerable discussion, was in answer to query No. 26, "Cosmoline," its claims of merit medicinally and pharmacally considered. The medical properties of this product from petroleum, as described by the writer of this paper, are really marvelous, and it reminded us somewhat of the advertisements to be found wrapped about the patent "salves" of the market covering the ground of surgery, from the simple scratch of the skin, to a compound fracture of the principle bones of the human structure. It certainly does go to show how marvelous are the properties of a "little grease" if properly applied. Its pharmacal use, as a basis for ointments, we cannot endorse, as the consistence of the article as we have seen it in the market is too soft, especially during the warm weather of summer. Originally cosmoline was intended for lubricating purposes only, but as there seemed to be money in it as a medicinal agent, the manufacturers have been unceasingly claiming for it, virtues which are on a parallel with the properties of mineral springs, located in every section of the country, and whose principal virtues reside in the purity of the "Aqua pura."

We have no objection to the use of the heavy paraffin oils, for they have one advantage over the ordinary fatty bodies, that of freedom from rancidity, and this feature alone should recommend the utilization of them in pharmacy. What we do object to, and that most emphatically, is the use of these paraffin oils under the *trade mark* of "cosmoline," and paying the patentees ten times the market value. The exposure of this nostrum by A. W. Miller, Ph.D., has had a salutary effect in reducing the price from $1.00 per ℔ to 45c. per ℔; a little further investigation will no do doubt have the effect of bringing it to the actual value. We hope that the executive committee, and the editor of the annual proceedings, will apply the *authoritative* "pruning knife" freely to the paper as read with its voluminous recommendation of merit. The best interests of the Association would be in the non-publi-

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cation of the paper, and the expunging of all the discussions pertaining to it. This authority is vested in the executive committee, and it will be much regretted if this is neglected, as the insertion of this paper will be, so to say, an indorsement of the miraculous properties of this nostrum, and its proprietors will be highly pleased in obtaining so general an acknowledgement of its merits, and so extensive an advertisement for so small a price.

The chairman of NOTES and QUERIES should be cautioned against the incorporating of queries of this character into his report for accceptance and answer. We have in this instance a practical illustration of the result of this class of queries when answered. The member accepted and answered the query in good faith and no blame can be attached to him for the answer presented. Let those who have the authority to prevent the Association at large from endorsing what simply is the private opinion and conviction of one of its members, and no harm will be the result. Time nor space will permit us on this occasion to reply to the correspondence of "Fair Play," which touches upon this subject, but we will do so in our next number.

A ball set to rolling by the herculean arm of "The Chicago Times" has almost made a ten-strike. It created a deafening buzz as it shot with furious velocity among the members of the Chicago Society of Physicians and Surgeons, and while some of them succeeded in jumping high enough not to get hit, others got their shins pretty badly bruised. The out-come was a set of resolutions, not indeed condemnatory—in fact praising it as one of exquisite workmanship—but *self*-denunciatory, as if to say: "Why did I not keep out of the way? Wo is me, miserable sinner!"

The ball rolled on—a little more slowly—still carrying along its ponderous weight, producing a gentle collision between the members of the above-named society and the COLLEGE OF PHARMACY, and expending itself like magic in a set of resolutions by the latter.

It is probable that here and there individual physicians and pharmacists have been guilty of an offense against ethics, and that these individuals are now miserable in the consciousness of the sin in yielding to the insidious seductions of Mammon disguised in a form so syren-like.

Well, the force of the ball is expended. Hercules is out of breath! Resolutions have been written and adopted by acclamation.

The world still moves in its endless gyrations through eternal space. The white sheep and the black dwell side by side—members of the same fraternity—but no art known to the alchemist has yet been discovered to make the black white or the white black. We are believers in the intrinsic naughtiness of some men, and, to use another figure of speech, think that when the social "Great Western" is propelling its course through the fathomless sea of Life it should—notwithstanding its strength—be constantly on the look-out for breakers.

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What can protect from imposition the multitude in this country, where License, to such an extent, takes the place of Law, and where the honest doctor and the upright pharmacist have no legal protection, but are placed in the same category with any rascal who has the audacity to dub himself the one or the other? Surely nothing but the intelligence, experience and common sense of the Individual. We hope that the separate and joint action of the medical and pharmacal societies may result favorably to the practice of the higher ethics and to the public weal, and that unanimity of sentiment may result in uniformity of conduct in matters plainly involving the interest of all.

DR. J. LEON SOUBEIRAN, Assistant Professor in the Paris School of Pharmacy, Honorary member of the Chicago College of Pharmacy, to whom the college is indebted for many professional favors and gifts, has been elected Professor of Pharmacy in the Ecole Supérieure, at Montpellier, France. From a letter lately received from the professor, we are informed that he has accepted, and has already entered upon the duties of the position.

CORRECTION.—We wish to correct two errors which occurred in the September number of THE PHARMACIST. In the formula for "Flavor for Tobacco," page 283, where it reads "until twelve pints have been obtained," *should read* until 96 parts have been obtained. In the formula for Syrup of Bromide of Iron, page 272, the decimal point was misplaced; instead of reading 6.20 grains it should read 620. grains.

We herewith take occasion to return our thanks to the many readers of our journal who have taken the interest to kindly point out the above errors.

EDITOR OF THE PHARMACIST:

One of the best soothing and healing ointments, especially for piles, chafing, and also salt rheum, is the cabolated tannate of lead ointment, of which the following is the formula, and which I hope you will publish for the benefit of others:

Take of Tannic Acid,....................Eighteen grains.
Carbolated Ointment,.............One troy ounce.
Solution of subacetate of Lead,....One fluidrachm.

Mix, B.

SUPERIOR HAIR OIL.

Castor Oil, E. I.,..................................2 pints.
Pure Olive Oil, fresh...............................1 pint.
Deodorized Alcohol,.................................1 pint.
Oil Bergamot, fresh,................................
Oil Lemon, fresh, aa,...............................2 drams.
Oil Lavender Flowers, fresh,........................1 dram.
Oil Cassia,...5 drops.

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The Pharmacist.

Vol. VII. CHICAGO, NOVEMBER, 1874. No. 11.

A SUGGESTION HOW TO COUNTERACT THE DEMAND FOR NOSTRUMS.

The timely and unprejudiced denunciation of the nostrum fraud by writers and editorials in recent numbers of the PHARMACIST, cannot but command the approval of every honest and high principled physician and pharmacist; it is high time, indeed, to check the continuous tide of this mischievous deception which is now depraving the trade and a discredit to the profession. The excellent essays in the August and October numbers of the PHARMACIST leave little room for additional exposure, but enough for the suggestion of practical remedies to counteract the evil, not among the prescribers and pharmacists, but with the consumer;—with the mass of the people.

Every pharmacist knows the embarassment in which he is frequently placed by the inconsiderate inquiries of customers about the component parts of prescriptions; generally they do not find the face nor time to address their queries to the prescriber, while they unhesitatingly presume to be entitled to satisfy their curiosity through the pharmacist who fills the prescription. No such inquiries, as a rule, are made at the purchase of the advertised proprietary medicines, the curiosity mostly being satisfied by the abundance of information and recommendation by means of wrapper, circulars, label, and by the advertisement, and especially by the familiar annual almanacs which, perhaps more than all other modes of advertising, contribute to the creation and maintainance of a constant demand for nostrums, inasmuch as they enter farthest into the masses of the people, being received as an ever-welcome annual calendar, into every fireside of our wide country.

It is, largely, the almanac by which the nostrum maker engages the pharmacist unwittingly into his service as an advertising and vending "middle man;" in return for this degradation, the scanty privilege of the insertion of his business card upon a back corner of the almanac is alloted to him, in order to give its contents the apparent endorsement of the pharmacist, well known in the community, and a stamp of respectability; and on the other hand, to enlist his interest in the liberal distribution of the advertising almanac.

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That class of proprietary medicines which in the disguise of "elegant pharmacy," applies particularly to the want of knowledge or principle of prescribers, can as yet in no better way be rebuked, than as suggested in the October number of the PHARMACIST, but the traffic of those bare-faced nostrums, which address themselves directly to the consumer, without making the physician or pharmacist knowingly a participant in the deception or fraud, can only be counteracted or repressed into legitimate channels, when encountered with equal expedients in those quarters where they create and maintain the demand for nostrums. It certainly cannot be interfered with by advertising, nor by the aid of the press, which receives a large share of the profits made in the sham business. But the most efficient way of counteracting ignorance and deception, and the concurrent nostrum quackery, which is at our command, may be that by the almanac, and we have it in our hands annually to supply our customers with their wonted almanac, hitherto the persuasive messenger of the nostrum man—but with one of our own choice and make, and to the benefit of our customers and very likely ourselves.

Let any enterprising publisher or wholesale firm arrange to annually edit an almanac, containing, besides the usual calendar, postage rates, stamp tariff, etc., general useful information and statistical notes about sanitary and health matters and requirements; brief information about the medical and pharmaceutical schools, colleges and associations, and other information of usefulness and value in home and workshop, in town and country; a list and brief direction for application of the antidotes of the common poisons in daily use in domestic economy and in arts and trades, and first help in accidents and emergencies; and further, annually, one or more brief common-sense essays on the absurdities and the dangers of the nostrum traffic, and of its origin, in the style of the essay in the August number of the PHARMACIST; and finally, a complete list of all those nostrums of every description, and of the formulas of such as have been analyzed.

The cover of the almanac—call it "Popular Sanitary Almanac," or any similar name—may be left to the disposition of every pharmacist who will become a subscriber to a certain quantity of the almanac, for the insertion of his business card and special advertisement, which can all be just as well afforded through a large house by the co-operation of many, as it is now accomplished on a large scale by enterprising individuals in the nostrum trade.

Such an annual almanac when skillfully elaborated and edited will be well received for exclusive distribution, not only by respectable pharmacists, but also by the public, where it by its usefulness and intrinsic value will soon find favor and preference over the nostrum man's almanac. The expense of such an almanac, suited for the entire drug trade of the country, may perhaps for the first few years fall upon the subscribing pharmacists and druggists, many of whom will gladly support such a movement, but when properly and promptly published and introduced, and its character and value recognized, there can be little doubt that it, as far as the drug trade is con-

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cerned, will soon supersede the trash now distributed, largely by pharmacists in the interest of the nostrum man's pocket, and further that its success and circulation in time will secure a substantial support from respectabie mercantile and trade firms, who will choose this annual companion of every fireside as a desirable medium in which to advertise their business.

Among the various suggestions of remedies against the degeneration of legitimate pharmacy by the increasing nostrum traffic, and against the mischief which they directly or indirectly cause, the above one may be acceptable for consideration.

New York, October, 1874. FRED'K HOFFMAN, PH.D.

OLD CARBONATE OF IRON.

BY M. S. BIDWELL, ELMIRA, N. Y.

In looking over some old stock a few days ago, a drawer was found containing several pounds of Ferri Subcarbonas in drops, which had completely changed color, becoming a yellowish drab, something like yellow ochre, but less bright. A knowledge of the effect of heat on some earthy paints, such as umber and sienna, suggested a trial in this case. A little was therefore heated in a porcelain crucible over a lamp flame for 15 or 20 minutes, when the deep red-brown color of the subcarbonate was found to be entirely restored. The very natural question as to the nature of the change was answered by heating a sec- second sample in a test tube, when a considerable amount of water condensed in the upper part of the tube. In a third experiment, a weighed quantity, heated in a crucible and weighed again when cool, was found to have lost ten per cent. The bulk of the carbonate, heated over a stove in a cast iron "spider," underwent the same change in color, the liberation of vapor being quite perceptible, especially when the mass was stirred. A distinct smell of ammonia was also perceived during a part of the operation. The subcarbonate was a good article, dissolving readily with effervescence in dilute muriatic acid, both before and after heating. It was doubtless made before it became customary to impair the efficacy of this drug by heating it to redness in order to give it a bright red color. This change of color by age and absorption of moisture, was new to me, and will probable be so to most of your readers, though an experienced druggist tells me he has known the lumps to change superficially, but never throughout, as in this case. Probably he did not give it time enough. It is not mentioned in any books to which I have had access. Would the bright and calcined oxide, commonly sold, change in the same way? How many years had been employed in effecting the hydration in this case, I cannot exactly determine, but think it cannot have been less than six, and may have been twenty.

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PHARMACAL ITEMS.

(Continued from page 225.)

BY ALBERT C. WEHRLI.

The preservation of CRUDE DRUGS, as *roots*, *leaves*, *flowers*, *etc.*, does not generally receive, at the hands of the druggist and pharmacist, the consideration that this every-day class of remedies deserve, and the consumer is often imposed upon in receiving a comparatively worthless drug, which has become so, in having been left to the destructive influence of the air, moisture, etc. This class of drugs which form one of the chief sources of profit to the profession, is entitled to more care and consideration. The storing of them should be only in receptacles which are inaccessible to vermin and moisture, and an occassional overhauling for the purpose of examing whether *time*, which changes all things upon this habitable globe of ours, has deteriorated them. The old maxim, "an ounce of prevention is better than a pound of cure," should be more strictly observed, and with it should be coupled *vigilance*, which recommends itself as a substitute for the proposed preservatives, heat, carbolic acid, camphor chloroform, etc.

Generally the roots and herbs as found in the market in the pressed state are reliable, and certainly this form of package more convenient for the retail dealer than when loose and bulky; yet it has one great disadvantage, and that is, that when so pressed and wrapped it is beyond the power of the purchaser, be he the professional dealer or the consumer to judge its freshness and quality, and it certainly would be a great advantage to all concerned, if the herbalist or dealer in this class of drugs, would accept the suggestion already made, to add to the label the *date* of the growth or when gathered. If this was adopted and observed, it would to a great extent replenish the market annually with *fresh* drugs of this character, or those whose virtue are impaired by age.

The storing of this class of drugs in dispensing stores, is usually in the drawers, arranged along the sides of the main walls of the building, and where the store is located on a corner of streets, which seems at present to be the natural order of things in this country, "*a drug store on every corner*," the drawers are usually located along the wall of the building next the street. This arrangement subjects the contents of the drawers to the various changes of temperature, moisture, etc., to which the wall from its location is exposed, and where these changes range from the intense heat of summer to the severe cold of winter, accompanied with much moisture, it cannot be otherwise than injurious to the qualities of drugs so stored and exposed. We therefore recommend that in fitting up a drug store, this, which may seem apparently a trivial thing, be taken into consideration, and these fragile goods stored in quarters which are the least exposed to wind and weather. The "partition walls," which are usually of wood, and therefore less subject to moisture, should be selected as the best location for the line of drawers, and these we would suggest should be made in sections, each case holding from 12

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to 16 drawers, which, when thus made, can be placed together to form a uniform line, at the same time allowing the removal of any of the sections to admit an occasional examination for the prevention of vermin and other destructive agencies. While speaking of vermin, we will alude to a matter that is not sufficiently thought of when fitting up stores, and that is the excluding of hiding places for mice and rats, which if allowed to get possession of a store, are usually not again destroyed without a great effort and expense. Some of the numerous haunts of these destructive animals, are the bases and cornices of counters and shelving, and the vacant spaces behind the drawers. The first of the "loop holes" could be obviated by closing up all the corners and endings where the mouldings of the bases and cornices meet; the vacant spaces behind the drawer are best prevented by a separate casing for each drawer, which, although it adds to the expense, is more economical, when the ravages and destruction of goods by these troublesome animals are taken into account.

Much more might be said upon the destruction of drugs, and the best means of protecting them, but we will only allude to one instance where we have been the unfortunate victim of these mischief-makers, and it will serve to illustrate how we are in constant danger of losing our reputation as careful pharmacists. A nostrum known as "Konig's Brust Thee," put up by A. Vogeler & Co., wholesale druggists, Baltimore, was recently sold by us, and the purchaser on opening the package, found the contents to be full of live worms; although innocent of any neglect on our part, as the article had just come to hand, and the vermin must have been generated ere it came into our possession, yet it lost us the confidence and trade of a very influential family, and who had been among our best regular customers.

Licorice Root is also very frequently worm-eaten, although we are not in great danger of censure on this account, as the greater part of this root is purchased and consumed by that class of humanity who are as yet "little" disposed to examine critically into its qualities. Yet for all that, we should not jeopardize our reputation with the sweet tooth of the "little customer," but even in this commodity let us exercise care and prudence. We can easily judge of the quality by splitting each piece lengthwise, and thereby separating the good and sound from the decayed.

The Extract of Licorice as generally purchased, does not present a very inviting appearance; this can be remedied by rubbing each stick with a cloth moistened with a bland oil, or one of the balsamic tinctures, as tolu, benzoin, etc.

The every day routine of a drug store suggests an abundance of subjects for improvement, which not only would benefit the apothecary but also the public. It is too often the case that seemingly trivial things are altogether neglected, for those of comparatively more importance, and many manipulations of a complex and difficult character are followed, simply for the want of attention or investigation, when the same object in view can be accomplished by a more simplified process, and the natural consequence of which would be a greater

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profit and a better product. As an illustration of what we have said, we will take the subject of MEDICATED WATERS. These are said to be saturated aqueous solutions of essential oils, and the usual method for their preparation in this country, is that of triturating the oil with carbonate of magnesium, which is said to act only mechanically in dividing the oil, so that the action of the water is more favorable, at the same time producing not only a clear and elegant, but a saturated aqueous solution of the oil.(?) This doctrine we doubt, and we hope shortly to prove its fallacy.

We claim first that the medicated waters made with the aid of magnesium carbonate, *are not saturated waters* of the essential oils employed, as the greater part of the oil is taken up and retained in an absorbed condition by the magnesium. Secondly, that the quantity of essential oil prescribed by the U. S. PHARMACOPŒIA, is largely in excess of the amount necessary to produce a saturated solution, and is therefore *a waste* of an expensive article. Thirdly, that the magnesium carbonate when used is more or less soluble in the aqueous menstruum, and therefore impregnates the preparation with impurities, which is more or less objectionable, according to the use for which the medicated water is employed as a solvent for other medicaments.

It is a well known fact, that essential oils as a rule, are but sparingly soluble in water at the ordinary temperature; also, that boiling water dissolves and holds in solution, at this elevated temperature, more essential oil than the same quantity of water at the ordinary temperature, and as medicated waters are intended to be but simply pure water, impregnated with the respective essential oil to that state of saturation, that the same will present a permanent clear solution at ordinary temperature. Based upon these facts, we offer the following process for preparing medicated waters, it meeting fully all the objections raised by us against the officinal formulæ: Fill a glass bottle, (or a container of some other material), half full of hot water, drop into this for every pint to be made, five drops of the essential oil; occasionally shake together the water and the oil until the water has regained the ordinary temperature, then filter through paper which has previously been moistened with water. This will yield a medicated water perfectly clear, and free from all impregnations excepting the essential oils used, of which it will be a saturated watery solution.

If, however, the usage of a third substance has become so essential in the preparation of this class of medicaments, that our suggested process by its simplicity, will prevent its general adoption, we offer the following modification of the officinal process, which will introduce an inert body as a mechanical divider, present the oil to the water in such quantities as to thoroughly impregnate it, without introducing foreign substances into the solution:

Pour the oil (half the quantity as prescribed by the U. S. P.) upon a piece of filtering or bibulous paper, (in making half a gallon of water a piece of filtering paper about 10 inches in diameter, generally known as No. 33, will answer the purpose of absorbing all the oil), introduce the paper by making a roll of it into a bottle of twice the

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capacity of the water to be made, and agitate it until the paper is reduced to a pulp, then filter through paper. This process works better if hot water is employed, as it saturates the water more readily. The risk of the bottle cracking when using hot water is a very slight one, and our loss in this respect is well set forth by O.

We have recommended half the quantity of essential oil to be employed, as the quantity of the U. S. P. is too large and only a waste.

HOW TO KEEP LEECHES.

BY CLAY W. HOLMES.

In the January number of the PHARMACIST, we have a very instructive article on Leeches, and their application. The final paragraph contains the true theory of their preservation, yet in keeping them the writer has not followed out his own doctrine. I wish to give the readers of the PHARMACIST my experience in keeping them, hoping it may benefit some one of them.

I usually purchase one hundred leeches at a time. The dealer packs them in a wooden bucket, nearly full of their native muck. On receiving the package, I immediately examine the leeches, putting them in water to see if all are healthy and active. I also see that the muck is good, throwing out everything which would be detrimental. I replace both, making a few small holes in the cover. Once a week I take the leeches out and give them a bath in water of about 60° F. After fifteen minutes immersion, I put them back and dampen the muck with a little water. The bucket is kept in a cool place in summer; in winter, in the dispensing room under the counter. I never loose over five out of a hundred, frequently not one in five hundred.

I believe great injury is often done to leeches by the careless handling of apprentices, who usually seem to be afraid of them, and snatch them up hastily with the thumb and forefinger, closing down on their slender bodies with a pressure sufficient to harm, if not kill them outright. The softer the touch the better for the leech. When furnishishing a customer, I direct him to put the leeches in water for a few minutes before applying them. Thus treated they seldom fail to bite readily.*

These remarks apply only to virgin leeches. I have never tried to keep them after being once used.

Wilkes Barre, Pa.

[*When leeches are in a torpid state, usually due to cold weather, they give great annoyance by refusing to bite; this can be overcome, by placing them for a moment in warm water, of the temperature from 80 to 100 degrees Fahr.—EDITOR.]

FERRATED COD-LIVER OIL.

"The Pharmaceutishe Central Halle" contains the following: Cod-liver oil combined with benzoate of iron is one of the ferrous combinations, which is soluble in the fatty oils. According to former experiments it has been proven that the benzoate is preferable to most of the other forms of iron, not only on account of its ready solubility, but also for having a less nauseous taste, which so strongly characterizes most of the cod-liver oils impregnated with iron in different ways.

The solubility of the benzoate of iron in cod-liver oil is dependent chiefly upon the amount of free fatty acids and gally constituents contained in the oil and the solubility is still greater by digestion at an increased temperature. A very convenient solution, adapted for most of the requirements is made by taking 1 part of the combined iron to every 100 parts of oil. The largest quantity found soluble in 100 parts of an oil of good quality and several years old, which did not show any turbidity by being kept in a cellar were 1.63 parts. The same quantity of another but fresh oil dissolved 1.45 parts of the benzoate during a digestion of one day and had formed but a minute sediment after a fortnight, holding then in clear solution 1.2 parts of the iron salt.

Benzoate of iron may be prepared by a moist process in the following manner: 10.0 grams of crystalized benzoic acid are dissolved in 200 cc. of distilled water and to this is added 15.0 cc. or sufficient caustic liquor of ammonia of 10 per cent. fill after moderate digestion the liquid is rendered slightly ammonical. 11.0 grams. of the officinal solution of chloride of iron, spec. grav. 1.480 previously diluted with 200 cc. of hot distilled water, are next added to the liquid and after stirring it, is left to deposit in a cool place for a day, then decanted and the residue again stirred with cold water and decanted as before. The remainder is washed in a filter and sufficient water poured on it, till the percolating liquid indicates but a minute reaction with nitrate of silver. The precipitate is dried on bibulous paper, pulverized and again subjected to a drying at a temperature of about 40° C. for a day and at last preserved in a well stopped bottle protected from the light. The weight of it will be 12.0 grams. In order to prepare the ferrated oil, it is necessary to use the perfectly dry salt; of this 10.5 grams. finely pulverized are triturated with 4.0 grams. of the oil. After repeated shaking for several days, it is set aside to deposit, and the supernatant brown liquid poured off. The residue is filtered through previously dried paper. To retain the original taste of this preparation, it should not be exposed to the light, as otherwise it may become disagreeable to the palate.

This preparation of benzoate of iron which was first proposed by Dr. Méhu, a Paris apothecary, was afterwards claimed as an original discovery by Mr. Godin, who is the same person referred to as "Sodin" on page 222 of the present volume of the PHARMACIST.

Report of the Board of Health of the city of Chicago, for the years 1870, '71, '72 and '73 has been received.

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OUGHT DRUGGISTS' APPRENTICES TO PAY FOR BREAKAGES?

On this subject there is a wide difference of opinion, and practice among pharmacists.

The furniture of every well appointed pharmacy is of a nature peculiarly liable to accident and injury, and the expense attendant upon such occurrences is often considerable. Who should bear it—the proprietor or the apprentice? Perhaps the question can not be answered by a very decided affirmative or negative, because the attending circumstances, alone must in all cases be considered; but it seems to us that in all ordinary cases the loss by breakage should be borne by the proprietor.

The liability to accident in the course of business, as conducted by the pharmacist is much greater than in almost any other mercantile occupation, and we see no reason why the apprentice should be made to assume risks which are inevitable in the carrying out of the routine of ordinary store duties.

"Accidents will happen" and those which do happen, being in most cases unforeseen and unintentional, it is no more right that those through whom the accidents occur should be made responsible, than that a person should be charged with a criminal offence in a case of accidental shooting or other similar occurrence.

Again, the compensation paid to druggists' apprentices is much less than that paid to those in any other employment, involving an equal number of hours of services, and the same order of talent, and to expect an apprentice who receives barely enough to pay for his clothes to forfeit his wages for several weeks perhaps, in consequence of an accident, seems to us altogether unfair and unjust.

A druggists' apprentice is obtained for very low wages because he is inexperienced, and on account of his inexperience, he inevitably causes a considerable destruction among graduates, bottles, etc.; but in the question of payment, the cheapness of the services rendered, and the inexperience of the apprentice, which the proprietor knew when he employed him, ought to be taken into consideration.

Of course where there is real carelessness, the person guilty of it should be made to suffer the consequences, and a knowledge that only real accidents which could not have been provided against would pass unnoticed, would operate as a cure for a habit which is but too readily acquired.

One of the best plans of which we have heard, and it seems just and fair for both parties, is that which is adopted by a well known pharmacist of this city. Whenever he hires a clerk, he informs him that he shall credit a certain sum, say ten dollars to his account, and that he shall expect the clerk to pay for all breakages which are not the result of some accident which no amount of care or foresight could have prevented. When breakages occur, the value of the articles destroyed is charged to the individual, the *actual* value only, or that amount which will replace them.

At the end of the year if the apprentice has been careful, he finds

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that his care has been rewarded by whatever remains credited to his account. If he has been careless, he pays the penalty, over and above a certain sum; for it will be observed that the proprietor is willing to take part of the responsibility, and the amount which he credits is of course an entire loss to him.

We think this plan is highly commendable. The proprietor knowing that even in his own hands graduates are liable to be broken and other accidents to happen, cheerfully assumes his part of the risk; at the same time he puts a premium upon carefulness on the servants part and stimulates him into cultivating the latter good quality.

Such a course may err on the side of indulgence, but we think it is better to do so, than to disturb the good understanding between clerks and those whom they serve, which is so essential to the well-doing of every well ordered establishment.—*The Laboratory.*

CITRONELLA OIL AND ITS MANUFACTURE.

The above essential oil comes to this country in large quantities, and is an article which generally figures prominently at the drug auctions, it being a favorite speculative medium. About two years ago it was particularly "active," and was, in Stock Exchange parlance, "bulled" until it attained a quite fictitious value. Encouraged by the high price current at the time, producers in Ceylon and elsewhere hastened to forward all available supplies, and the oil became, in more senses than one, a drug upon the market. There is a legitimate and fairly large demand for it as a scent for soap and a constituent of perfumes. The oil is distilled from a grass of the *Andropogon* species, and most of it comes from Ceylon. But the best brand is "Fishers," and is produced on the estate owned by the gentleman of that name, near Singapore. In the *Straits Times* we have come across an interesting description of this estate, which is devoted to the growth of fragrant plants, yielding some of the most important essential oils of commerce:

"Pleasantly situated on the Tanah Merah road, just four miles from Singapore, the 'Perseverance' estate occupies a tract of land of 950 acres of perfectly level plain. It is compact, though the outline is somewhat irregular. It is about two miles in length by one mile broad, and while the whole is cleared, and partially drained, only about half is, as yet, under cultivation. The soil is singularly fertile, and, when cleared, does not require a great amount of attention. Its chief enemy is the Balang weed. *Andropogon carcosa*, a grass of the same family as those which have created the staple industry of the estate. The soil is composed principally of clay, with occasional patches of sand and peat. The latter is found in the centre of the estate, and is in layers of various thicknesses, from one to six feet, and has been formed by the rapid decay of a fast-growing shrub. The upper part of the estate is quite three miles from the present coast line, the country two miles from which was evidently once part of the

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domain of water. Five or six feet below the surface is a coral reef, supposed to stretch right across the estate in a narrow belt. Not only is the Perseverance estate very fertile, but its soil has proved almost inexhaustible. The cleared portion is extensively cultivated, and produces almost anything thas it is asked to produce. * * * There are at present in the still room thirteen large stills in constant work. The grasses are put into the stills, which are hermetically closed at the top, a jet of steam is forced in from below, and in one hour's time the whole of the essential oil is extracted. The grass is taken from the still, dragged away, and its place supplied by a fresh quantity. The lemon grass, after its properties have been extracted forms a nourishing and favourite food with the cattle employed on the estate.

"The citronella, too, is likely to prove as valuable after as before it is distilled. Its fibre is evidently admirably adapted to making paper, and a sample of it has been sent home to be experimented upon. There is little doubt of the experiment proving successful; but unfortunately there is not enough citronella plant to meet so large a demand as is made by the paper market. Parenthetically, we may mention, while we are on this subject, that Mr. Fisher has applied for a patent for the manufacture of paper from the nipa or attap palm, of which there is plenty, provided his plan is successful, in these islands to answer any demand,

"The water required for purpose of condensation is forced up into reservoirs by a centrifugal pump of 10 horse-power. The lift is about 20 feet. After the oil emerges from the still it is subjected to a clarifying process. It is first filtered through funnels lined with specially prepared blotting paper, and is subsequently strained an indefinite number of times into large cylinders until it has attained the requisite clearness. Then it is bottled in ordinary beer or wine bottles, and packed in cases of Jelutong wood, a wood white, close-grained, pretty, and light. The bottles are packed standing close together until the case is full, when the interstices between are filled up with sawdust, which is carefully rammed down. By adopting this mode of packing, breakages are reduced to a merely nominal number. But this system of packing necessarily involves a great waste—a waste of time, labour, and space. We suggested a more economical mode of packing; but were informed that a great prejudice exists in the market for these essential oils, that the proprietor of the Perseverance estate gets a higher price for his oils than any other competitor, and that any change in the mode of packing would considerably reduce the market value of the commodity.

"Besides citronella and lemon grass, oils are here extracted from mace (the flower of nutmeg), nutmeg, sandal wood, pepper, and patchouli (*pogostemon*). The latter oil is a very expensive one, sometimes bringing as much as 6*s*. 6*d*. per oz. The smell of the oils is not a pleasant one when your nose is close to them. At a distance it is more agreeable. A pleasant scent is plainly perceptible at a distance of quite half a mile from the estate. The taste of all the essences is acrid and unpleasant. They find a market in commerce for various purposes, such as the manufacture of scents and fancy soaps. The

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lemon-grass oil is medically prescribed for the treatment of rheumatism and bruises, and is a specific more effective and valuable than the famed cajaput oil. The American is the principal market, followed by the English and continental. We could not obtain any specific details of the yield of oil per lb. or ton of grass. It seems hard to estimate this. Sometimes twice as much oil is extracted from a given quantity of grass as at others, depending perhaps upon the actual state of the atmosphere or of the oil at the time. A difference of at least 50 per cent. is looked for in the results. A new boiler is being erected, additional stills are being made, and new land is being brought under cultivation, so that shortly the yield of the estate will be largely increased. The thirteen stills at present at work produce more than 3,200 ozs. per day, or about 830,000 ozs. in the course of the year. The oils are sold by the ounce, and were never so low in price as at present,* the reason of which is ascribed to the fact that in Ceylon is now produced an inferior oil, which has swamped the market. The present annual yield of the Perseverance estate is estimated at $30,000. About 100 labourers, principally Javanese Hadjis on their way home from Mecca, and whose services are bought for a time, are employed. Sixteen bullocks belonging to the estate are kept in constant work carting the grass to the stills, and teams are hired from outside. Such is the Perseverance estate, not such as Mr. Fisher found it, but as he has made it."—*Chemist and Druggist.*

EVAPORATION AND DIFFUSION.†

BY PROFESSOR OLDING, M. A., F. R. S.

Of the circumstances on which the rate of evaporation of the same-volatile substance chiefly depends, one very influential circumstance, namely, the nature of the atmosphere into which the vapour proceeds and distributes itself, does not appear to have been made the subject of careful examination. There is, however, one familiar experiment on the subject; and it consists in passing up a little ether into two equal volumes, one of hydrogen and the other of air, contained in similar cylinders standing over water. Evaporation of the ether takes place in both cases; though far more rapidly into the hydrogen than into the air, as shown by the far more rapid expansion of the hydrogenous than of the aerial space, from the addition to it of the ether-vapour. This experiment is usually cited in illustration of the greater rapidity at which ether-vapour diffuses itself into an atmosphere of light hydrogen than into an atmosphere of comparatively heavy air. It is doubtful, however, whether the explanation in this precise form is strictly correct, the diffusive mobility of any gas or vapour being a property altogether special to itself, irrespective of extraneous conditions. Thus, in a particular experiment, Mr. Gra-

* The present value of citronella oil in the London market is 1¾*d.* per oz. Fisher's realizes 2*d.*

† Lecture delivered at the Royal Institution of Great Britain.—Reprinted from the proceedings.

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ham found that while the quantity of hydrogen which in one minute of time passed through a graphite plate into a vacuum was 1·289 c. c., the quantity of hydrogen which in the same time passed through the same graphite plate into the surrounding air was 1·243 c. c., or almost exactly the same.

A novel experiment on the influence due to the nature of the contiguous atmosphere upon the rapidity of the process of evaporation consists in introducing into each of two similar tall cylinder bottles a sealed glass bulb containing a little iodine. The one cylinder being filled with hydrogen, and the other with air, and each having suspended from its mouth a piece of starched paper or cloth, the bulbs are then broken by concussion of the containing cylinders. But, in this case, the test paper or cloth suspended in the cylinder of air becomes affected by the iodine considerably before that suspended in the cylinder of hydrogen; or, contrary to what happens to ether, the iodine *appears* to volatilize more quickly in the comparatively heavy air than in the much lighter hydrogen. Similarly, if some weak aqueous ammonia contained in a sealed glass bulb be set free in a tall bottle of hydrogen, and also in a tall bottle of air, a piece of turmeric paper suspended from the stopper of each bottle becomes affected by the ammonia vapour more quickly in the bottle of air than in the bottle of hydrogen.

Water may be taken as the type of a volatile substance, and the nature of the process of evaporation be conveniently studied in relation thereto. Now, in a hermetically-closed vessel exhausted of air, but partly filled with water, the matter of the water exists in two states—a portion of it in the liquid state, and another portion in the aerial, or vapourous, or evaporated state; and, with excess of liquid water present, the quantity of vaporous water that can exist in an otherwise vacuous space, or the density of the vapour filling the space, is found to vary solely with the temperature. Thus 100 cubic inches of space will contain, at 58° C., 3 grains of vaporous water; at 100° C., 15 grains; at 144° C., 58 grains, and so on; or the densities of the vapour of water at these different temperatures are as the numbers 3, 15, and 58 respectively. Now, the quantity of water-vapour that can exist at any particular temperature in a volume of otherwise vacuous space is almost identical—it used to be considered absolutely identical,—with the quantity of vapour that can exist in the same volume of space already occupied by air. In other words, a cubic inch of water-vapour, and a cubic inch of air saturated with water-vapour, contain the same weight of the matter of water. Hence it is found that with continuous increase of temperature, a greater and greater quantity of liquid water ceases to be liquid and becomes vaporous, or is in other words, evaporated into the adjoining space, whether vacuous or aerial; and conversely with decrease of temperature, a greater and greater quantity of vaporous water ceases to be vaporous, and is deposited in the liquid state. Thus, upon cooling a globe of transparent warm moist air, it is at once filled with an opaque mist, which, left to itself, soon becomes deposited in the form of drops; but which may be readily made to disappear or re-vaporize by gently heating

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the globe. The deposition of dew on cold surfaces brought into a warm moist room is familiar to all.

The tension or spring of water-vapour varies with the quantity of vapour filling the space— that is, with the density of the vapour, and consequently with its temperature. Thus the tension is equal, at 15° C., to a pressure of 13 millimetres of mercury; at 60° C., to a pressure of 149 millimetres; at 100° C., to a pressure of 760 millimetres; at 144° C., to a pressure of 3,040 millimetres. At the temperature of 100° C., the tension of the vapour of water being equal to a pressure of 760 millimetres of mercury, balances the tension or pressure of the atmosphere, as measured by the height of the barometric column. Hence, on continuing to heat water already at the temperature of 100°, it boils, or is converted into vapour, having a tension equal to that of the atmosphere. And so with a less or greater external pressure, water boils at a lower or higher temperature—in each case at the particular temperature whereat the elastic force of the water-vapour balances the particular external pressure. Under a pressure of 149 millimetres, for instance, water boils at 60° C.; under a pressure of 3040 millimetres, it boils at 144° C. The occurrence, then, of ebullition at some particular point of temperature may be viewed as a mere accident of the process of evaporation—a more and more rapid evaporation, with production of vapour of higher and higher density and elasticity, proceeding continuously with the continuous increase of temperature, although, indeed, at a far more rapid rate than the rate of increase of temperature.

In the conversion of liquid water into water-vapour heat is absorbed. It was at one time considered that the quantity of heat absorbed was independent of the temperature and correlative tension of the vapour yielded, and that it varied only with the quantity yielded. It was held, for example, that in the conversion, say, of a gramme of liquid water into a gramme of water-vapour—whether of tenuous vapour at a low temperature, or of dense vapour at a high temperature—the same quantity of heat was absorbed. This rule, though now known to be only approximately true, is nevertheless true to allow of the amount of cold or absorption of heat resulting from any evaporation being taken as an indication or measure of the amount of that evaporation. The depression of temperature caused by the evaporation of water is familiarly shown in the use of the wet-bulb hygrometer. This instrument, consisting simply of a couple of thermometers, one of which has its bulb kept continuously moist, the difference in way of deficit between the temperature manifested by this wet-bulb thermometer and the temperature manifested by the other thermometer, is a measure of the amount of water evaporating from the surface of the moistened bulb.

What is true of liquid water and of water-vapour is true, in principle, of other volatile liquids and of their several vapours. At any given temperature some of these bodies votalize much more rapidly, others of them much less rapidly, than one another, and than water; and in the process of their evaporation some of them absorb a greater amount of heat than other, though for the same weight of vapour

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formed no one of them is known to absorb so large an amount of heat as water. Disulphide of carbon, ether, and alcohol are familiar examples of bodies more volatile than water; aniline, mercury, and molten silver, of bodies less volatile. It is well known that water when required pure is distilled—that is to say, it is first vaporized by heat and then re-liquefied by cold; and silver when required absolutely pure is sometimes submitted to the same process of distillation. Evaporation is, moreover, a property not only of liquid, but also of solid bodies, as of sal-ammoniac, iodine, camphor, ice and snow, solid carbonic acid, etc. Many of the phenomena of evaporation can be illustrated more conveniently with other volatile substances than with water. Thus the cooling produced by evaporation may be strikingly illustrated by means of ether, and still more strikingly by means of some liquefied gas, as liquefied sulphurous or nitrous oxide.

The necessary influence of some conditions on the rate of evaporation is obvious. Evaporation being a direct result of the absorption of heat, and the higher the temperature the greater the quantity of vapour capable of existing in a given space, it is found at higher and higher temperatures water evaporates or dries up more and more rapidly, in proportion approximately to the increasing density of the vapour at higher and higher temperatures. Wet linen, for example, is habitually dried by being hung before the fire or placed in heated chambers or ovens.

Similarly, with regard to the influence of the extent of liquid surface on the rate of evaporation, it is found that the evaporation of a given weight of liquid water takes place more rapidly when the water is spread out in a wide dish, than when it is contained in a narrow tube, in proportion to the greater extent of surface from which the evaporation can take place in the one case than in the other. Thus, while half a pint of water in a tumbler will remain for an almost indefinite time without becoming dried up, half a pint of water absorbed in a thick towel, exposing on its two sides more than a dozen square feet of surface, will become dried up in the course of twenty-four hours.

Again, the influence exerted by the greater or lesser dryness of the adjacent space, whether or not aerial, upon the evaporation of water is obvious. Into a space already saturated with vapour no further evaporation whatever can take place; and other conditions being alike, the drier the space the greater the amount of evaporation that can take place with it, and the more rapid the process of evaporation. In the laboratory moist substances are made dry by allowing the water from them to evaporate into spaces kept artificially dry by means of dessicating agents, such as oil of vitriol, quicklime, chloride of calcium, etc., which absorb the water-vapour from the space as fast as it is produced therein. Moreover, evaporation proceeding into any space, vacuous or aerial, until the space is saturated with water-vapour, and more rapidly in proportion to the removal from saturation of the space, it is obvious that, other conditions being equal, evaporation proceeds more rapidly into a large space requiring for its saturation a

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considerable weight of water-vapour than into a small space capable of being saturated by a minute quantity of the vapour.

The influence of the extent of aerial space into which a vapour can distribute itself upon the rate of formation of the vapour leads to a consideration of the effect of the movement of the contiguous air upon the rate of evaporation from a given surface. With an absolutely quiescent atmosphere, the layer of atmosphere in immediate contact with the surface of evaporating liquid must become quickly saturated with vapour; and but for some spontaneous means of removal of the vapour itself, or the air saturated with it, from the surface of the liquid, all further evaporation would be arrested. The nature of these spontaneous means of removal will be considered presently; but the influence of the artificial removal of the more or less saturated air from the surface of the evaporating liquid can be easily manifested. Thus, on allowing a strong current of air to play upon a surface of ether contained in a thin glass vessel standing on a stratum of water, the stratum of water becomes quickly frozen by reason of the heat abstracted from it, in the rapid production of ether-vapour which takes place in the current of air. For whereas with the ether in the vessel left to itself, the interior of the vessel soon becomes saturated with ether-vapour, and further evaporation with correlative cooling effect is almost arrested, with a current of air blown on the surface of the ether, the liquid ether is in continuous contact with a fresh unsaturated atmosphere, into which it continues to evaporate with rapidity.

In connection with the above influences, it is observable that the evaporation of water from growing plants is favoured by the three conditions of extent of leaf surface, movement of the more or less dry atmosphere, and heat of the summer sun. An early and very striking experiment of the extent of this evaporation was made by Dr. Stephen Hales in 1724, and is recorded in his 'Vegetable Statics.' He found that with a healthy, full-grown sun-flower more than a yard high, planted when young in a suitable pot, the evaporation from the plant itself, amounted on the average to 20 ounces in a twelve hours' day, the maximum quantity being 30 ounces. Some very interesting and exact modern experiments on this subject were conducted in 4850 by Mr. Lawes, at Rothamstead. As an example of the results obtained, he found that a plant of barley, during a period of 172 days' growth, in which it acquired 419 grains of dry organic, and 46 grains of dry mineral matter, evaporated not less than 120,000 grains, or upwards of 17lbs. of water; so that for every grain of dry matter, organic and mineral, fixed by the plant during its period of growth, 257 grains of water were absorbed and evaporated.

A most important condition affecting the rate of evaporation is the pressure on the surface of the volatile substance. Into a vacuum indeed, where there is no pressure, evaporation is practically instantaneous. Thus, on letting up a little water, alcohol, or ether into the vacuum of a barometer, the mercury is at once depressed to the maximum extent producible by the tension of the particular vapour at the particular temperature. Again, on breaking a sealed bulb of iodine, within and at the lower end of a long sealed vacuous tube, a

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piece of starch-paper at the upper end of the tube is almost immediately affected by the iodine vapour. Further, the cooling consequent on the rapid evaporation of ether, ammonia, etc., into a vacuum, is taken advantage of in the construction of several well-known freezing machines. Again, in Leslie's celebrated experiment, the evaporation even of water into a vacuous space, from which the water-vapour is removed by some desiccant as fast as produced, takes place with such rapidity and correlative absorption of heat as to effect the freezing of the residual water from which the evaporation is proceeding. The same result is effected in Wollaston's cryophorus, the water-vapour in this case not being absorbed by oil of vitriol or other desiccant, but being simply condensed by cold applied to the other and distant bulb of the twice bent vacuous tube. Moreover, it was long ago shown by Daniel that evaporation of water into the same dry atmosphere takes place at a rate inversely proportioned to the pressure of the atmosphere. Thus in a particular set of experiments, the pressures of the air being 30·4, 15·2, and 7·6 inches of mercury, the quantities of water evaporated in half an hour were found to be 1·24, 2·97, and 5·68 grains respectively.

That the nature of the atmosphere into which a vapour can distribute itself has an important influence on the rate of formation of the vapour may be manifested by several experiments, in addition to those shown at the beginning of the lecture. Thus, with a couple of thin glasses standing on a stratum of water, and containining each some rectified wood-spirit, if the one portion of spirit be blown upon by a strong current of hydrogen, and the other portion by a strong current of air, the stratum of water underlying the glass of spirit blown upon by the hydrogen willl alone become frozen, by reason of the excessive vaporization of, and heat-absorption by, the spirit in contact with the atmosphere of hydrogen. Again, a series of experiments has recently been made by the speaker on the relative rates of evaporation of wmoater into limited atspheres of hydrogen, air, and carbonic acid redrspectively, alike kept y by contact with a large surface of oil of vitriol. In these experiments the evaporation was found to take place most rapidly in hydrogen, and least rapidly in carbonic acid; and as a mean of seven tolerably concordant results, the ratio of the rate of evaporation in hydrogen to the rate of evaporation in air, under the particular conditions of the experimement, was found to be as 2·68 : 1.

The influence of the particular contiguous atmosphere on the rate of evaporation of any particular liquid may be, and probably is, of a very complex nature. There are, however, two easily intelligible ways in which the particular atmosphere may act by virtue of its specific gravity. Thus a lighter heavier gas or vapour ascends or descends bodily through another at a rate proportionale to the difference in their specific gravities, a very slight difference sufficing to bring about an upward or downward current of considerable activity. This upward or downward movement is well shown by introducing first heavy-ether-vapour, and then light coal-gas, through a lateral opening made at about the middle of the length of a tall, somewhat

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wide, perpendicular glass tube, open at both ends; when it will be found that the ether-vapour, descending by reason of its heaviness, can only be inflamed at the bottom of the tube, while the coal-gas, ascending by reason of its lightness, can only be inflamed at the top. Now, the specific gravities of hydrogen, aqueous vapour, and air at the same temperature, being to one another as the numbers 1, 9, and 14·5 respectively, it is obvious that, whereas hydrogen saturated with water-vapour is heavier than dry hydrogen, air saturated with water-vapour is lighter than dry air. Accordingly, with a surface of water exposed to an atmosphere of originally dry hydrogen, the hydrogen in actual contact with the water will not, by becoming moist, acquire a tendency to rise up through the dry hydrogen, and so be removed from the surface of the liquid; whereas, with a surface of water exposed to an atmosphere of originally dry air, the air in actual contact with the water will, by becoming moist, acquire a tendency to rise up through the dry air, and so become removed from the surface of the liquid. And, having regard to this influence alone, water when occupying an inferior position should evaporate more rapidly into air than into hydrogen. It must be borne in mind that any given volume of moist air or gas is the sum of the volume of its constituent water-vapour, and of the volume of its constituent dry air or gas; and that the tension of the moist air or gas is the sum of the tension of its constituent water-vapour, and of the tension of its constituent dry air or gas, actually or virtually expanded by the addition to it of a certain valume of water-vapour. So that with water boiling in a deep open vessel there may exist in close proximity to each other almost pure water-vapour, different mixtures of water-vapour and air, add comparatively dry air, all having alike a tension of 760 millimetres of mercury.

But independent of their bodily movements in the form of currents, gases and vapours distribute themselves among one another by a proper molecular movement of diffusion—the relative diffusive mobilities of different gases or vapours being inversely as the square roots of their several specific gravities. Accordingly, with equal surfaces of water, exposed respectively to an atmosphere of hydrogen and to an atmosphere of air, the vapor produced from the surface of the water is interpenetrated and distributed through the contiguous space with greater rapidity by the highly-diffusive hydrogen than by the feebly-diffusive air, in proportion to their relative diffusion-velocities 3·8 and 1·0 respectively. And it is, doubtless, to the more rapid diffusion of hydrogen than of air into the vapour as formed, and the consequent more rapid supply to the liquid of an unsaturated atmosphere into which it can evaporate, that the more rapid evaporation of water, ether, and wood-spirit into an atmosphere of hydrogen than into an atmosphere of air, as in the experiments, for instance, already shown and described, is substantially due.—*London Pharm. Journal.*

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INDIA RUBBER.

The substance properly named caoutchouc, but known to commercial men as india-rubber, is the milky juice or sap of several varieties of trees and plants indigenous to hot countries, which, on being exposed to the air, coagulates and becomes sufficiently hard to form a thick, solid, but elastic surface, which is impervious to water and ordinary liquids.

The principal plants from which the raw material is obtained are the *jatropha elastica* and *urceola elastica;* but the rnbber producing trees and plants are said to grow spontaneously in a tropical belt around the entire earth, the best quality being generally found nearest the equator.

The natives obtain the juice by tapping the trees, and a wooden or clay mold is dipped in the liquid until the successive layers are of the required thickness, and these are successively dried over a fire or in the sun. In some countries a dense smoke is employed to both harden and give a darker color to the coagulated mass. The valley of the Amazon is credited with producing the finest quality of rubber, and the best Para is the most sought for and commands the highest price. The juice of old plants or trees yields nearly two-thirds its weight of good substance ; while that obtained from younger trees or plants is somewhat less—the waste in the latter case being very considerable. Acids greatly hasten the process of coagulation by separating the thinnest part of the juice from the genuine caoutchouc. The processes of hardening and preparing it greatly varies with the localities where it is obtained. In some cases the milk is boiled in water, then pressed, and subsequently dried. In other sections, when the liquid is obtained from vines or plants, pieces of the latter are boiled and salt is used to give consistency to the mass. There are said to be as many as twenty different varieties of rubber, varying in value, according to the tenacity, color, dryness, and freedom from extraneous matter. " Fine Para" generally weighs five pounds to the " form," each dip to the fluid adding about one-sixteenth of an inch in thickness until the requisite amount is obtained. The natives in some countries are expert in the adulteration of this article, and practice what is called " false packing," which greatly deteriorates its value, while for many purposes it is entirely worthless.

The elasticity of this valuable article is its most remarkable property; when sufficiently warmed by immersion in hot water or by aid of heat otherwise applied, it may be drawn out to six or eight times its original length, and will subsequently return to its former dimensions. While cold renders it stiff and rigid, warmth will again restore its original elasticity. Thin filaments of this substance spread over cloth render it valuable for the manufacture of water-proof clothing, tents, boots and shoes, carriage and horse coverings, &c., &c. It is also run into molds, or formed in other ways into an almost endless number of uses, and has become an indispensable aid to the comfort and welfare of mankind in the present advanced stage of our civilization.

The mode of manufacturing rubber into the various articles to

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which it is adapted is more or less varied in different establishments; but in most respects the general features are common to all engaged in their production.

The raw material is first cut into pieces of suitable size, thoroughly washed, ground, rolled out into thin sheets, and hung up to dry When required for use the sheets are united with various compounds known to the trade, and by means of heavy, heated rollers, reduced to a pasty mass; this putty-like substance is then run through large cullenders on to cloth. or into molds to answer the purposes for which it is designed. In its native condition the smell of rubber is very offensive to most persons, and this is also the case when the manufactured article is submitted to a flame or any heated surface.

The use to which rubber is most generally applied is repelling water, but it also enters very largely into the manufacture of jewelry, belting, surgical and dental instruments, drinking cups, buckets and pails, car-springs, hose, toys, &c., &c. The important specialty of boots and shoes alone is said to consume nearly two-thirds of all the rubber brought to this country, and the quantity obtained for all purposes is constantly and rapidly increasing.

Quite recently some person in the Eastern States is said to have made the discovery that the common milkweed which grows in old pastures and on the borders of low-lying lands contains a secretion which can be turned to the same purposes as the genuine caoutchouc. On being cut or broken it exudes a white fluid, much resembling the juice of the plants of Southern growth previously described, and under certain circumstances it is claimed that it will coagulate and become elastic.

A highly inflamable and very light, volatile, oily liquid, is obtained by distillation from caoutchouc which the chemist Graham named caoutchine.—*The Druggists' Journal.*

THE WORCESTERSHIRE HOP GARDENS.

The associations connected with hop-picking—at least in the West Midland Counties—are of a mixed poetical and utilitarian character. The work is carried on for the most part in a country rich in every agricultural product, and in the midst of lovely pastoral scenery. The gathering in of the hop harvest is a tedious process, and calls for a sudden immigration of extra labourers, who generally flock in from the neighboring and mere populous districts to help in a work which is light and easy, and fitted to the capacities of the most inexperienced workpeople. The Kent and Sussex plantations receive at these times the surplus idle population of London, and Worcester and Herefordshire look to the "Black Country" around Birmingham and Dudley for their supply of special labourers. Glad of the opportunity of a country "outing," the fire-burnt puddler leaves his Cyclopean labour, the nailer deserts his family smithy, the collier emerges from the bowels of the earth to its surface, and all migrate with wives and children, a tin kettle, and a few scant domestic necessaries for their

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autumnal "tour," in search of the fresh air and sunshine of the Worcestershire and Herefordshire hop-gardens, bringing back with them, at the end of a month or so, a store of health, and of apples for their winter consumption. The apples are a privilege which they claim from the orchards as part of their guerdon, and which is generally conceded, because if it were refused the result would be just the same. The hop harvest of the present year, however, is so scant that the colliers, nailers, and ironworkers of East Worcestershire are almost entirely shut out from this customary source of combined pleasure and profit; and the harvest is being gathered in for the most part by the local labouring population, with here and there a few town immigrants to help them. The uncertainty of the hop-crop is proverbial. As an illustration of this uncertainty I may contrast the produce of the Worcestershire plantations last year and that of the present. I should mention that "Worcester" hops are not at all the produce of this county, but of the "Worcester district," which includes Herefordshire (where more hops are grown than in the county of Worcester), and also portions of Salop, Gloucestershire, and Staffordshire, where a few scattered plantations are to be found. At the annual hop fair, held here last Saturday, 70 pockets of new hops only were offered, whereas at the 1873 fair, 1,000 pockets were in the market, and 2,000 more were offered for sale by sample. Prices, too, varied in the two years from £5 to £7 in 1873 to £14 to £16 per cwt. in 1874. The farmers of Herefordshire depend very much upon their hop and fruit crops, and this year they are unfortunate in both, apples being generally a very short crop, and hops almost a total failure in that county.

The cause of failure of the hop-crop arises almost invariably from the injury, amounting to partial destruction, of the plant when in a growing state by a certain insect, by which it is infested in a remarkable degree in certain seasons favourable to their increase. The aphides which infest the hop-plant early in its growth sometimes appear in such small numbers as to have no effect on the growth of the vine, while in other seasons they swarm on every leaf, and follow up the growth rapidly, feeding upon its juices and destroying its vitality, the leaves ultimately shrivelling up or dropping off the vine. The insect is an hermaphrodite, and as a single parent will be the origin of many generations in a week, under circumstances favourable to their generation, it sometimes happens, as in the present season, that every leaf, before it has fully expanded, is swarming with the vermin. The creatures congregate on the under surface of the leaf, and are thus not much affected by rain or storm. They are, therefore, not easily dislodged, but it is found possible to destroy them by a carerul application of a wash of soft soap and water, applied with a syringe. The wash, however, must be applied to the under surface of the leaf, or it is ineffectual; this an observant and painstaking workman can apply effectually after a very little practice. Care must be taken that the wash is not applied of too great strength, or the foliage of the plant will be injured. The washing of the hops is only very partially resorted to, but its beneficial effect has been proved in a remarkable degree this year by a few of the best Worcestershire hop-growers.

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The insect sometimes appears in considerable quantities in the beginning of the season. and is destroyed subsequently by its natural enemy, the ladycow and its larvæ, and hence many planters, trusting to this chance, defer the washing until it is too late, and the plant is too much injured by parasites to recover, and the produce is a few stunted blossoms hardly worth the picking, instead of the graceful pyramid of leaf and hop clusters, that form one of the finest features in a Worcestershire landscape.

There are, unhappily, very few of these beautiful pictures to be seen this year in the Worcestershire hop-grounds. The most prolific hop-gardens in the district this season are, perhaps, those belonging to Mr. T. M. Hopkins, on the estate of Mr. Vernon, at Wick, near Worcester, where, at the present moment, a little army of some 500 workpeople is busily occupied, through rain and sunshine in securing the valuable crop. The Wick hop-gardens are situate on an angle of rich light land formed by the junction of the Rivers Severn and Teme, and are perhaps the best-managed gardens in the district. Hence the contrast presented by their beautiful and fruitful appearances to that of neighboring hop grounds, where the same attention and care have not been bestowed on the cultivation. The acreage of land under hop-cultivation here is about 79, and this year's produce is estimated at 23 tons. The hops, moreover, being cured on an improved principle, introduced by Mr. Hopkins, the sample is of the finest, and commands the highest prices. Last year there were grown on the same area 38 tons of hops. I may mention here that the total acreage of the Worcester district is 8,670, the acreage for the whole kingdom being 60,082, according to the last Government return. Probably it now exceeds that amount.

There is no such thing as a hop farm in the West Midland Counties—*i. e.* a farm devoted entirely to the cultivation of hops—but the plantations are scattered about in places supposed to be suitable to the growth of the plant, so that, the crop being notoriously risky, it is only grown in small quantities on each holding. The Wick gardens are the most extensive in any single holding, and here the cultivation, harvesting, curing, and bagging of the crop is carried on consequently in a more systematic manner. and less by "rule of thumb" than in smaller undertakings of the same kind. The mode of picking is the same here as elsewhere. About four persons—men, women, or children— undertake a "crib," and receive for their pickings 2d. a bushel. By this plan, if they choose to work, from 1s. to 1s. 6d. or 2s. a day may be earned; but this year the women grumbled at first at the results, the early pickings being small; though later, when the larger hops came to be gathered, the same cause of complaint did not arise. Periodically during the day the hops are collected and measured at each crib, the measure being entered in a book kept by the head of each crib, and at the end of the week payment is made upon the amount so entered, the workpeople being subsidised before pay-day, if they require it. As the hops are collected, a man with a horse and cart conveys them, in sacks weighing about eight bushels each, to the kiln for curing. The Wick hop gardens at this moment present, per-

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haps, an exceptional illustration of the usual aspect of a Worcestershire hop-yard in the picking season, where, up to within the last few years, misrule and disorder generally reigned. The people of the "Black Country" are by no means remarkable for their observance of law or order, of decency or morality, and no stranger could pass through a hop-yard when the crop was being gathered without risk of insult and annoyance, which could only be evaded by a pecuniary ransom. These things are altered now for the better, and they improve every year. The employés in the Wick gardens are not from the "Black Country" at all, but appear to be for the most part very tidy and well-behaved people, chiefly women from Worcester—some old and past hard work, some poor and lacking more profitable employment. The workers find their own provisions, except, I believe, a supper; but the master, with a kindly consideration for the peculiar feelings of the female portion of his helpers, provides a certain allowance of capital tea for each crib. A furnace is erected on the ground, and a monster teakettle established, which supplies the favourite beverage, "hot and sweet," to the thirsty hoppers.

The process of curing as carried on here calls for particular notice. The kiln is constructed upon an improved principle, as modified by Mr. Hopkins. Three floors are arranged, one above another, each twenty feet square, for the drying and curing of the hops as they are brought from the pickers, and these floors are heated by a furnace below, which is used for working a fan placed at the top of the kiln to cary off the hot air and create a draught. The floors are all open to air—*i. e.* they are composed of rafters with hair or wire netting across, which permits of the air and heat passing through them. By having three floors arranged one above another the work of drying and curing is accelerated, and a saving of fuel is effected. The hops are first put into the top floor, where they remain about four hours until the "reek," *i. e.* the moisture which they have imbibed from the atmosphere is carried off. This passes away through the exhaust fans, which create a draught (as was shown by the visitor throwing up a pocket-handkerchief which was carried off by it), and when the reek is off the hops are dropped, without handling or breaking, to the middle floor, where the heat is greater; and subsequently they are dropped into the third, a moveable floor, which, in fact, consists of two large trays that can be pushed in through lifting doors at the side and removed again when the process is completed. So that there is, in fact, no handling of the hops after they are placed on the first floor until they are put into the bags or pockets, the trays being removed to the pocketing urn, which is in the same building as the drying-kiln. Time is also economised by the system of the moveable floor, which allows of one lot of hops cooling while others are being cured. One great advantage of the fan in drying the hops is that it draws the cold air up through the floor with the warm, and although the hops are dried quicker they are dried at at a much lower temperature, and the quality of the hop is not endangered. The temperature is never allowed to exceed 90 degrees, so that all the aroma and volatile oil, which would be driven away at a higher temperature, are

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preserved. The advantage of the use of the fan has also been tested, by permission of the Excise authorities, in the drying of malt, the result being that malt was perfectly dried in twenty-eight hours, while under the general system the process occupies from three to four days. The boiler used on the basement floor of the kiln to work the fans supplies generally all the heat required for the curing of the hops, but if necessary, there is a supplemental open fireplace (fed with anteracite coal) by the side of the boiler.

The bagging of the hops is the last process before they are conveyed to market, and this is carried on on an improved plan compared with the old system of "footing" the hops—*i. e.* letting the empty pocket drop through a hole in the floor of the bagging-room, and having them stamped down or "footed" by a man who gets into the pocket for the purpose, and comes out again at the end of his work as yellow as a canary-bird. The new process is effected by machinery which will fill and press down a pocket of hops in eight minutes, three men being required for the work. By the old process of footing a pocket is filled in about twenty minutes by the aid of two men, viz. one to fill and one to tread. But there is this advantage in the new process, viz. that the hops are packet lighter, and that they are bagged unbroken, and when cut afford a sample more saleable than one in whicu the hop is broken.—*The Brewers' Guardian.*

TRANSACTIONS OF PHARMACAL COLLEGES AND SOCIETIES.

PHILADELPHIA COLLEGE OF PHARMACY.

The semi-annual meeting of this institution was held in the College Hall, yesterday afternoon, the president, Mr. Dillwyn Parrish, in the chair. The minutes of the last meeting were read by the secretary, Mr. W. J. Jenks, and the minutes of the board of trustees were read by Mr. W. C. Bakes, secretary of the board.

Mr. Charles Bullock, chairman of the committee on deceased members, reported that a memoir was in course of preparation of the late Charles Ellis, which would be presented at the next meeting. He read a very full and carefully prepared memoir of the late Professor William Procter, which was ordered to be published.

The delegates to the recent meeting of the American Pharmaceutical Association, held at Louisville, Ky., presented their report.

The delegates to the Conference of the Teaching Colleges of Pharmacy submitted a very interesting report, from which it appears that it has been decided that the abbreviation of the title of Graduate in Pharmacy shall be Ph. G. Professor Maisch announced that the International Congress of Pharmacists, which lately assembled in St. Petersburg, Russia, will probably convene in this city in 1876.

The following gentlemen were elected trustees for the ensuing year: W. H. Pile, A. B. Taylor, E. C. Jones, W. C. Bakes, William McIntyre, A. P. Brown, R. V. Mattison, Robert England. Com-

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mittee on deceased members: Charles Bullock, A. B. Taylor, Professor Remington.

MASSACHUSETTS COLLEGE OF PHARMACY.

CYRUS M. TRACY, Professor of Materia Medica and Botany, and JAS. F. BABCOCK, Professor of Chemistry, have resigned their respective chairs in the Massachusetts College of Pharmacy. The vacancies thus produced have been filled by the election of W. P. Bolles, M. D., to the chair of Materia Medica and Botany, and J. M. Merrick to that of Chemistry.

INDIANAPOLIS PHARMACEUTICAL ASSOCIATION.

We have received the neat little pamphlet containing the constitution, by-laws and code of ethics of the Indianapolis Pharmaceutical Association, with a list of officers and members. This society was organized in June of the present year, with Eli Lilly, as president; Geo. W. Sloan and J. B. Dill, vice-presidents; Chas. C. Dennis, rec. secretary; Ross W. Perry, cor. secretary; J. L. Tibbetts, treasurer; Adrian Bowens, Jos. R. Perry and Geo. W. Sloan, executive committee.

THE NEW HAMPSHIRE PHARMACEUTICAL ASSOCIATION

Was organized June, 1874, with the following named officers: president, Chas. A. Tufts, of Dover; vice-presidents, Chas. F. Hildreth, of Suncook, and Jos. H. Thacher, of Portsmouth; treasurer, Henry B. Foster, of Concord; executive committee, Isaac N. Perley, P. J. Noyes and E. G. Thorp.

EDITORIAL.

Our editorial remarks in the October number upon the late meeting of the A. P. A., were for want of space and time somewhat brief, and therefore a number of important subjects were not alluded to. Among these was the small attendance when compared to the number present at former meetings. This was not due to the "hard times," as stated by some of our contemporaries, as the number of visiting members was larger than usual, but it was due to the non-attendance, and the little interest manifested by the members of the drug trade of the city of Louisville and vicinity.

There are in the neighborhood of 100 drug stores, representing from 200 to 300 persons engaged in the profession. During the whole of the sessions of the meeting which lasted some 4 days, the register shows an attendance of 14 persons, which with the acquisition of the 9 new members elected, certainly is out of all proportion for the city in which the Association met. The explanation given for this indifference, was, that the objects and purposes of the A. P. A., were not well understood by the majority of the profession, and in consequence of some existing local feeling, these objects were mis-

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represented by others, who were, or should have been familiar with them. This was unfortunate, as it circumscribed the usefulness of the Association in a section of the country where it had been anticipated that a meeting would do a great amount of good,

The fault, if it may be so called, was an error of judgment, and is explained by the following which was given us as the cause:

There exists among those who are not members of the Louisville College of Pharmacy, a feeling which is not akin to professional friendship towards this institution, and as it devolved upon some of the most prominent members of this college to arrange and receive the Association, it was misconstrued into the belief by those not members, that the Association were the guests of the college, and thereby came naturally this feeling of antipathy towards the Association by the members of the profession at large, in the city of Louisville and vicinity.

It will be well to profit by the experience had at Louisville, and whenever in future the Association goes to cities where local associations or colleges exist, let care be exercised that it may become the guest of the profession at large, and thus it may come to pass that it be the means of conciliating instead of irritating the feud, producing harmony where discord exists. In alluding to this matter we have in mind the little misunderstanding existing at present at Boston, between the Mass. College of Pharmacy and some members of its Alumni. We sincerely hope that the existing difficulty will soon be removed, for it retards the progress of the profession, which, no doubt, both parties are striving to promote, and if we would be but a little more yielding in our individual opinion, calling to mind what the poet so well and beautifully says:

> "Shall I ask the brave soldier who fights by my side,
> In the cause of mankind, if our creeds agree?
> Shall I give up the friend I have valued and tried,
> If he kneel not before the same altar with me?"

The communication of "Fair Play," in the October number of the PHARMACIST, (page 298), wherein he severely criticises the action of the Association, regarding the acceptance for publication of the paper read on the nostrum "Cosmoline," and refusing this same privilege to a mechanical device, because the apparatus was covered by a patent, is but a one sided representation of the subject. Let us, therefore, take a view of the other side of the picture.

The paper presented on the nostrum "Cosmoline," was in answer to a query delegated to the member who read the paper, and the Association could not do otherwise than receive the paper, and refer the same to the Executive Committee for publication. This the Association is bound to do; its by-laws and common courtesy demand such treatment towards members from whom answers are expected. Therefore, thus far the action was a proper one; when this had been done its obligation to the writer ceases, and the paper comes before the Executive Committee for further consideration. If they find an answer to a query which in their opinion is objectionable, or not in

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harmony with the objects of the Association, they have the power to refuse its publication in the annual proceedings. This is not the case with volunteer papers presented and read. These are subject to the order of the Association, or it may delegate the power to the Executive Committee if it seems proper to do so. Therefore, it was in proper order for the Association to decide at the time, that the remarks made on the patented percolator should not appear in the proceedings—the subject having been presented as a voluntary contribution. Regarding the decision of the Association not to publish papers or communications upon mechanical devices that are covered by patent, we think it a correct and just one. The inventor has no other motive in bringing his invention before the notice of the Association than a pecuniary one. It is his private property, and the instruction he may bestow, does not become the possession of the public for any other purpose than to reward him for his invention. This reward of genius we approve, but we object to the mode of advertising that he seeks at our expense, for should the Association open the doors, every inventor of a device that might be, or might become useful in pharmacy, would not neglect to come to the annual meetings, occupy the time of the sessions, which are, and always have been, somewhat limited for the transaction of the scientific business usually brought before them, and our annual proceedings would soon become so voluminous, and the expense of publication of the same so great, that it would very soon bankrupt financially the Association. Therefore, it is not only scientifically but financially *sound* to refuse the insertion of such matter.

That the interesting as well as the instructive feature of this material shall not be lost, the Association has wisely inaugurated an annual exhibition in connection with the meetings, and here these patented apparatus or novelties pertaining to the drug business can be exhibited, and the Association sets a part of one session for the very purpose of visiting the same; this visit with the feature that the exhibition room is open during the whole time of the meeting, gives ample opportunities for the inventors to exhibit and explain the merits of their respective inventions. The Association also appoints a special committee on exhibition, who subsequently make a report upon the same, which appears in full in the annual proceedings. Therefore in our humble opinion, the Association gives as much as it receives, and the exhibitor is well repaid for his trouble and expense.

KITCHEN-POISONING.

"The recent poisoning in New York, caused by the reckless use of vermin 'exterminator,' deserves the earnest attention of housekeepers. Three persons died, and several others were seriously prostrated from the effects of this preposterous blunder. The developments at the inquest give a startling exhibition of the ignorance and carelessness of servants, and show how liable families are to fatal accident is

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the kitchen when constant supervision is not exercised by the mistress of the house. The particular exterminator used in this case was Paris green, one of the deadliest of mineral poisons, and the testimony shows that it was employed in entire ignorance of the danger incurred. Enough of the substance was scattered about the kitchen to kill a regiment,—the only excuse for such an invitation to disaster being a desire to rid the premises of roaches. Very likely the roaches were killed by such vigorous treatment, but it is a miracle that the whole family was not as summarily disposed of. As it was, the consequences were sufficiently dreadful. The poison was found scattered everywhere,—among the dishes, among the knives and forks, and on window-sills, where a breath of air might scatter it into articles under process of cooking. Such foolhardiness is almost incredible, and the carelessness of the head of the family in permitting such practices equally so. The trouble of 'looking after' servants is often a serious one, but experience constantly shows that it cannot, either in safety or comfort, be relaxed."

We cull the above from the daily press, for the purpose of calling the attention of the profession, to the indiscriminate sale of this so very poisonous pigment. Its composition is that of an *arsenite* or *aceto-arsenite of copper*, and we as pharmacists, knowing its dangerous character, should take every precaution to put the purchaser upon his guard regarding the deleterious properties of this article.

The public generally consider "Paris Green" in the light of a *green paint*, and we have invariably found that on explaining its dangerous character to those wishing to use it for the purpose of destroying insects about the house, have taken our advice and employed a less dangerous if not a more effectual remedy. When, however, it is sold, the same precautions should be taken by the pharmacist in labeling, keeping a record of its sale, etc., similar to that of selling arsenic, or other virulent poisons.

We are sorry to learn that our colleague, William Saunders, of London, Ont., Canada, suffered by fire on the 16th of October last. The fire commenced in the storehouse in the rear of his drug store, and it was only with great difficulty on the part of the fire department that the store was saved from total destruction. Mr. Campbell, one of Mr. Saunders assistants, had a narrow escape. The stock, the larger portion of which was damaged, was valued at $12.000. The loss on building and stock, above insurance, will be about $4,000.

CORRESPONDENCE.

Mr. Editor: Will you please in the next number of your journal inform the writer what is Koumiss? How is it prepared, and what is it good for?

Chicago Enquirer.

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Koumys or " Koumiss" is what may in ordinary vernacular be mildly termed a kind of "Milk Punch," at least it is said to "fill the bill" in this respect for the roving wild Tartar. Of late, Europeans have become interested in this beverage, and the milder character of this race has maintained itself, in substituting the milk of the slow "Bovine" for that of the fast "nag" in its production. The publication of these European investigations has already began to tell on some of the enterprising manufacturers of "elegant nostrums" in this country, and as the "elixir swindle" is fast going out of fashion, this novelty hailing from the great desserts of TARTARY, presents as a basis, a wide field for another line of tippling drinks.

What seems essential to its successful introduction is the aid of the medical profession, which no doubt can be obtained, if its merits as a preventive and cure for consumption are properly called attention to and there exists no doubt that the whole of TARTARY can be called upon to sustain the claim of its miraculous power and virtue in preventing this much dreaded scourge of all diseases to cross its boundary lines. Another important point that must not be overlooked by the manufacturer, so as not to destroy its virtue for "*consumption*" is that the percentage of "ardent spirit" be large enough to make the drinker feel jolly.

In answer to " Enquirer's" query how is it prepared we will cite the following formula suggested by Professor Marius, and published in HAGER'S PHARMACEUTISHE CENTRALHALLE.

Take a strong clean Champagne bottle, (quart) fit to it a good cork, and fill the bottle with good fresh cows milk, leaving a space of about an inch between the cork and milk (when corked), add to the milk in the bottle about two ounces of finely powdered white sugar, and dissolve by shaking the bottle. Take of compressed yeast a piece of the size of two peas, rub it into a soft paste with a little sugar and milk, add it to the bottle, cork and secure the cork by aid of string. Shake the bottle frequently during the first two days, after which allow it to lie quiet in a warm room (in winter place it near the stove.) It will be ready for use about the fifth day, and will remain good for about 20 days. When of good quality it should have a uniform milky appearance of the consistency of fresh cream, having an agreable slight sweet sour prickling wine taste and odor. It should not be of a curdy consistence, nor have an odor or taste similar to buttermilk. Care must be taken in opening the bottle as the effervescence is so brisk that an overflowing can seldom be prevented, and its always advisable to open the same in an apartment where the surroundings will not be injured by the spatterings. The usual effect of the first bottle of Koumys on the system is laxative, but this soon changes on its own accord exercising no further disturbance of the bowels.

Professor Reichardt, in an article published in the September number of the ARCHIV DER PHARMACIE, lays special stress upon the temperature employed during the period of fermentation, which sets in at about 80° F., and continues favorable until 100° F., when the temperature goes beyond this fermentation ceases altogether. He also found a solution containing about ten per cent. of sugar of milk the most suita-

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ble for a uniform and satisfactory fermentation, and as cows milk contains from four to five per cent. of sugar, it is advisable to add the deficiency. (Mares milk contains from seven to ten per cent) He also observed that fermentation commenced in a few hours, when milk containing a small quantity of yeast was exposed to the direct rays of the sun in summer.

ALBERT E. EBERT, *Editor of Pharmacist:*

Dear Sir,—Will you permit me to ask a question or two? Why is it that we have no preparation representing the Cinchona bark that can be combined with the iron salts which will not form an inky mixture so disgusting to sight, taste and smell, and reeking with tannate of iron?

Why cannot we have a tincture of cinchona and its compounds which can be used by our physicians when they would prescribe the bark and iron, which they cannot now do without the above mentioned objection?

Why cannot we have a detannated tincture of cinchona and its compound with which to make our elixir cinchona and iron, and not be compelled to "substitute" alkaloids, as suggested at the last college meeting, at the expense of an incorrect nomenclature?

We are told that to precipitate the cinchotannic acid from our elixir of cinchona before addition of our iron salts, by ferric sesquioxide, would be too hard for most of the druggists, and that they would still continue to patronize the proprietary elixir institutions, &c.

Now, then, I have a suggestion to make—that is:

TINCTURE OF CINCHONA, DETANNATED.

℞ Tincture of Cinchona, U. S. P., 1870, ℥ xvj.
Hydrated Oxide of Iron, (*Fresh*) ℥ ij.

Mix, macerate six hours, with an occasional shake; then pour on filter, and when the tincture has passed through wash the precipitate collected on the filter with small quantities of boiling alcohol until the original measure of the tincture of cinchona has been made up. (This washing the iron hydrate will prevent any loss of the alkaloids which may have been incorporated therein.)

Is it not just as easy as falling off a log? This mixture, if manipulated with any care at all, will make you just as pretty a mixture as you could wish to see; mixed with any of the iron salts gives a clear mixture, free from tannate of iron, &c.

Do you see the point, and what do you think of it?

Yours, fraternally, MATT. W. BORLAND.

MR. EDITOR: Can you give an exact or approximate formula for Haven's Positive Cure for Catarrh, in your next number, and oblige?

B. T. M.

We have never seen nor heard of the nostrum. Some of our readers may be able to give the enquirer the desired information.

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REVIEWS AND BOOK NOTICES.

A Conspectus of the Medical Sciences, comprising manuals of anatomy, physiology, chemistry, materia medica, practice of medicine, surgery and obstetrics, for the use of students, by Henry Hartshorne, A. M., M. D., Professor of Hygiene in the University of Pennsylvania, etc., etc. Second edition, enlarged and thoroughly revised, with four hundred and seventy-seven illustrations. Philadelphia: Henry C. Lea, 1874; pp. 1024. For sale by Jansen, McClurg & Co., 117 and 119 State Street, Chicago.

The high reputation of the author of this excellent work is sufficient guarantee that the present edition is a great improvement on the first, which was itself a valuable book indeed. We highly commend it to the use of students and practitioners.

Physiology of Man; designed to represent the existing state of Physiological Science as applied to the functions of the human body, by Austin Flint, M. D., Professor of Physiology and Physiological Anatomy in the Bellevue Hospital Medical College, N. Y. Vol. V, Special Senses; Generation. D. Appleton & Co., New York, 1874.

The first volume of this excellent treatiese was published eight years ago. Since then volumes two, three and four have appeared at regular intervals, and now we have the fifth and completing one of the series. In the preparation of the work Prof. Flint, jr., has shown an enthusiasm in the study of the subject, and diligence in research equaled by few writers. No thing has been taken at second hand. No pains have been spared to consult original works to which other authors have referred in giving account of certain subjects. The experimental observations of physiologists have been studied and the results verified or shown incorrect by direct practical experiments. As an original and acurate investigator Prof. Flint, jr., has gained a distinguished reputation, both at home and abroad. Among the more important results of the author's labors may be mentioned, his discovery of a new excretory function of the liver in the form of stercorine; his view that the *besoin de respirer*, or sense of want of air is due to the want of oxygen, and not to the stimulation of the carbonic acid. In a word, Flint's "Physiology of Man" may now be considered the most complete work on that subject in the English language.

Archives of Dermatology; a quarterly journal of skin and venereal diseases. Edited by L. Duncan Bulkley, M. D. New York: G. P. Putnam's Sons. October, 1874.

We are in receipt of the initial number of this new aspirant for professional honors and patronage. There has long been in this country an opening for a journal of this kind, and, so long as it adheres to the policy expressed by Dr. Bulkley, of catering to the wants of the general profession, rather than to those of the specialist, aiming to simplify the subject and make it of a practical character, a policy sound and commendable, there can be no doubt that it will be, as it ought to be, cordially supported by the medical press and profession. R. E. S.

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The Chicago Journal of Nervous and Mental Disease. Quarterly. Edited by J. S. Jewell, M. D., assisted by H. M. Bannister, M. D.

This journal of which we have received the first three numbers, was started in January of the present year. Each number contains upward of 100 pages of a very high order of this special literature. Office, 57 Washington Street. Terms, $4.00 per annum.

As we are going to press we are in receipt of *The Chicago Medical Register and Directory*, for 1874. Published under the direction and supervision of the CHICAGO MEDICO-HISTORICAL SOCIETY. Edited by A. REEVES JACKSON, A. M., M. D. We will review this seemingly useful publication in our next number.

Tinnitus Aurium, or Noises in the Ears. By Lawrence Turnbull, M. D., Physician to the department of Diseases of the Eye and Ear, Howard Hospital, Philadelphia. J. B. Lippincott & Co., 1874.

From the Smithsonian Institution, Lecture III, on *Strain and Over Action of the Heart.* By J. M. Costa, M. D., Professor of Practice of Medicine, in Jefferson Medical College, Philadelphia, etc. Delivered May 14, before the Toner Lecture Course.

From the Bureau of Education—*Circulars of Information, No. 2,* 1874. Drawing in Public Schools: The Present Relation of Art to Education in the United States. Washington, D. C.

Address of Joseph M. Toner, President of the American Medical Association, extracted from the Transactions of the American Medical Association, 1874.

"Polyhistor" in the *Druggists' Circular*, suggests that the following formulas by Mialhe of *Médécine blanche, Médécine de Magnesie*, are identical with the Milk of Magnesia, advertised by Daniell & Co.

Calcined Magnesia,..................................	8 parts.
Water,..	40 "
Sugar,..	50 "
Orange Flower Water,..............................	20 "

Rub the magnesia with the water until it is homogeneous, heat to ebullition with constant stirring, add the sugar with the aromatic water, and strain.

The Schleswig-Holstein Pharmacopœia, 1831, gives practically the same formula as Lac Magnesia.

[*Note by Ed. Druggists' Circular.*—"The manufacturers of Milk of Magnesia claim that their preparation contains nothing but magnesia and water."]

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THE PHARMACIST.

VOL. VII. CHICAGO, DECEMBER, 1874. No. 12.

ON THE PURIFICATION OF WATER.

BY DR. JOHN N. NIGLAS,

Among the important agencies influencing the sanitary conditions of communities, is that of water used for drinking and cooking, which is as essential to the economy as the air we breathe. To render this indispensable fluid comparatively or absolutely pure, has engaged the minds of scientists for a long time, and many have been the suggestions and processes advanced for this purpose. Lately, Dr. Keletzinsky, of Vienna, Austria, has devised a method, and that the same has merit, is substantiated by the fact, that the authorities who have in charge the department of public health in the Austrian capital, have adopted the same for general use.

To my friend, Dr. Charles Brants, president of the Vienna Pharmaceutical Union, I am indebted for a copy of the prescription, and accompanied with it the request that it be given a trial so that the benefit thus to be derived, may be largely participated in, I herewith give the formula for the preparation, which no doubt will be intelligible to the adepts of the chemical laboratory.

Take of Phosphate of Aluminum, one part.
Phosphate of the Oxide of Iron, two parts.
Phosphate of Magnesium, two parts.
*Phosphoric Acid, (officinal) sufficient quantity.

The freshly prepared phosphates of aluminum, iron and magnesium, are dissolved in the solution of the phosphoric acid, with the aid of a gentle heat. The solution thus obtained is filtered through paper, and in this state can be kept on hand for any length of time. When required as a purifying agent for drinking water, add the phosphatic liquor, small quantities at a time, to the water, until no further cloudiness is produced; let stand so as to allow the precipitate that has

*The Phosphoric acid of the Pharmacopœa Austriaca has the sp. gr. of 1.130, containing 16 per cent. of Anhydrous acid.—EDITOR.

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been formed to settle, and use the clear water. The ***modus operandi*** is explained thus: The lime salts usually contained in water, will partially abstract from the aluminum, iron and magnesium, the phosphoric acid to form phosphate of lime, being thus deprived of their solvent, they will at once be thrown out of solution, and chemically unite, or mechanically carry with them such impurities as may exist in the water operated upon.

The magnesium absorbing all the free ammonia, the oxide of iron combining with the sulphydric acid and other gases of decomposition, while the alumina and the phosphate of lime will mechanically drag down such suspended particles of impurities as the water may be impregnated with.

The addition of a slight excess of the phosphatic liquor, is in no way objectionable to the animal economy, and therefore no fears need be set up on this account.

Peoria, Illinois.

CAMPHOR ICE.

Table showing various formulas for the preparation of Camphor Ice. (The proportions are given in parts by weight):

INGREDIENTS.	1	2	3	4	5	6	7	8	9	10	11	12	13
Ol. Amygd. Exp	16						8	8					
" " Ess													1
" Lavand. flor				¼	½								
" Verbena flor						¼							
" Citronella						¼							
" Ricini		12											
" Olivæ			12										
" Rosmarini flor	⅛												
" Myrciæ Ac									½	½		¼	
Aqua Rosæ	16												
Cera Alba	1	8	3	4	8	16	4		18	18	20	11	20
Cetaceum	1	6	12			8	3	1		8	10		10
Camphora	2	2	6	2	4	4	3	1	8	6	6	5	6
Sevum									36			22	
Sevum Benz				16	16								
Adeps						24							
Stearin com										24	24		24
Glycerin			1										

No. 1 is an English Formula, and gives a variety of Cold Cream; No. 2 is a Formula used by a Cincinnati Pharmacy; No. 3 is a modification of No. 2, by the addition of Glycerin; No. 4 is in use in Philadelphia, Pa.; No. 5 is an English Formula; No. 6 is from a Broadway, New York, Pharmacy; No. 7 is of French origin; of No. 8the pedigree is lost; No. 9 to 13 are Formulas of the writer, and have

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been extensively used for both wholesale and retail trade, and will give excellent results, with perfectly sweet materials. The perfume is not arbitrary but can be mixed to suit one's taste, but do not consider it economy to use Ol. Mirbane, for it will ruin any of the formulas.

The manipulation is easy to be understood; in the first and third formulas it is similar to that of the Cold Cream of the Pharmacopœia; in all the others, the wax is to be melted first, then the cetaceum and lard, then the camphor, and finally, when sufficiently cooled, the essential oils, and then cast into suitable molds.

THOS. J. COVELL, Ph. G.,
November, 1874. Denver, Colorado.

LUPULIN, THE ALKALOID OF HOPS.

In order to ascertain with certainty whether an alkaloid really exists in hops, Griessmayer undertook a very careful investigation of the subject, the details of which we take from *Dingler's Journal.* Ten pounds of hops were boiled for three hours in about three hectolitres of water, and afterward boiled again for seven hours and the decoction concentrated to 70 litres. One-half of this was distilled with caustic potash, the other with magnesia usta, and about 25 litres of distillate obtained. Both distillates had an alkaline reaction, and a strong odor, due, no doubt, to trimethylamin, besides a slight ammoniacal smell; with acetic acid they gave a slight cloud, with hydrochloric acid a strong one. With nitrate of cobalt both distillates gave precipitates; the supernatant liquid was green in the potash distillate, but rose red in the magnesia distillate. The supposition that there was no ammonia in the latter was found to be incorrect, but the quantity was less. In other respects, both distillates were so similar that the author did not treat them separately. The mixed distillates were distributed in different dishes, some being neutralized with oxalic, some with sulphuric, and some with hydrochloric acid, and then evaporated to dryness on a water bath. As they showed no considerable difference, for the sake of simplicity only that neutralized with hydrochloric acid is described below. It was observed that all these solutions became acid on evaporation, which was due to the dissociation of the ammonia salt and probably also of the trimethylamin. The solutions were at first almost colorless, but on long evaporation became brown, and an apparently amorphous substance separated, which collected together in flakes, which under the microscope looked like spherical bacteria, had a slightly reddish color and a reed-like structure, and, lying on the side, looked like stretched-out sickles. The dry residue from evaporation was digested with cold absolute alcohol; the greater part remained undissolved, and proved to be sal ammoniac by its reaction with potash and lime, the odor, the cloud, the platinum salt and Nessler's test. The alcoholic liquid was heated to boiling, and after boiling a short time allowed to cool; a voluminous precipitate crystallized out, consisting of hydrochlorate of trimethylamin. When this

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salt was heated with caustic soda, a sharp, characteristic odor of herring brine was given off; the vapor, when conducted into a colorless flame, imparted to it an intense yellow color. On treating the salt with cold soda, and holding over it a glass rod dipped in acetic acid, scarcely any reaction was observed, but a rod dipped in hydrochloric acid gave a thick cloud. When chloride of platinum is added to the salt, in a short time a beautiful orange-colored octahedral precipitate forms. There can be no doubt of the identity of this salt with hydrochlorate of methylamin, the only question is whether there is not some methylamin also present, but attempts to separate it failed. The remainder of the alcoholic liquid, from which the greater part of the trimethylamin had crystallized out, was evaporated on a water bath until it began to sputter; then the alcohol was allowed to evaporate, the mass was taken up with water, and shaken in a narrow cylinder with potash and ether. A strong odor of trimethylamin was again given off. After standing a long time, the etherial strata was carefully taken off with a pipette, placed in a glass capsule and left to evaporate spontaneously. The result was a brownish-yellow, alkaline liquid, with a peculiar odor, resembling coniin, with a cooling but not bitter taste. A drop placed under the microscope showed, beside the above-mentioned reeds and sickles, also four-sided plates, and similar forms. When moistened with water the filtrate had an alkaline reaction. With chloride of platinum it gave at first no precipitate; on adding alcohol and ether, and allowing it to stand some time, it gave an amorphous, greenish-yellow precipitate; with concentrated sulphuric acid and bichromate of potash, a violet color. With fuming nitric acid, at first a yellow color; in half a minute it turned green, then a very dark green, with a bluish color at the edge; in half a minute more it was colorless. With tannic acid, nitrate of silver, Fehling's solution, and chloride of mercury, white precipitates. With chloride of gold, a yellowish white precipitate, soluble in hydrochloric acid. With a one-tenth normal iodine solution, a brown precipitate. With iodine vapors, at first white, then yellow; with bromine itself, a sulphur-yellow precipitate, which became orange and brown. With phospho-tungstic acid, a voluminous yellowish-white precipitate. With Nessler's solution, the ammonia reaction. With hydrochloric acid, no reaction. Attempts to crystallize it with sulphuric, hydrochloric or oxalic acid failed. The quantity of the alkaloid described, and to which the author gave the old name of lupulin, was too small to allow of anything more than a nitrogen determination to be made. The alkaloid is volatile, and it is possible that it exists only as liquid and vapor, and that the crystals observed were unessential companions that accompany it. Its analogy to coniin and nicotin, which act similarly toward fuming nitric acid, favors this supposition.

Other experiments proved that some kinds of hops contain no trimethylamin, and finally, also, that the substances present in hops go into beer.—*Journal of Applied Chemistry.*

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ADULTERATION OF SULPHATE OF QUININE.

At the fourth annual meeting of the New Jersey Pharmaceutical Association, held in the city of Jersey City, Feb. 11th, 1874, Mr. P. W. Bedford, of New York city, made the following disclosure regarding this subject:

"I would like to say a word in regard to that sulphate of quinine business. Mr. Am Ende speaks of having received sulphate of cinchonia instead of it; but there has been a much worse fraud than that carried on, and I noticed it some seven years ago, in regard to the muriate of cinchonia. One of my neighboring druggists came in one day, and borrowed from me an ounce of sulphate of quinia, and a few days afterward he returned it, and sent me in an ounce of Pelletier's sulphate of quinia. It was a kind of sulphate of quinia that I hadn't seen before, and on examination I found that instead of being sulphate of quinia, it was muriate of cinchonia. Within the past year the firm of Tallmadge & Co.,—I don't hesitate to speak the name—Tallmadge & Co., well known on the west side as dealers in pure essential oils, have sold thousands of ounces of muriate of cinchonia with Pelletier's labels on, and sent it through the trade wholesale. I might mention one firm that have two hundred ounces on their shelves, and don't know what to do with it. This can be found all over; it is an imitation, and is nothing but the muriate of cinchonia; thousands of ounces they have sent out. It can at once be detected by the fact of its solubility in water. Of course the test for cinchonia salts is easily applied: the test of dissolving it in water with acid, then adding ammonia and ether, the ether dissolving the quinia, while the cinchonia is insoluble.

Another fraud that was brought to my notice some two and a half years ago, was that of selling the sulphate of quinia in ounce bottles, removing the label of the manufacturer, that is, the strip label of the sulphate of quinia, and putting on the strip label of the sulphate of morphia. So you remember the sale of bromide of potassium for iodide of potassium—hundreds and hundreds of pounds were sold around New York. The trouble is that the apothecaries are too lazy; they take things without tests. The tests in the Pharmacopœia, if applied, will invariably show you whether it is right or wrong; and it is a matter of great regret that our apothecaries don't try them."

ON THE MANUFACTURE OF WINDOW GLASS.

From a lecture by Dr. Wisthoff, in Germany, we extract the following rpoints in regard to the history and manufacture of window glass:

The first window glass made were the small, round disks, which were of Italian origin. They began to be used as early as the 12th and 13th centuries in churches and palaces. At first they were of a light green color, but were afterward made in yellow, blue, violet and red. From this sprung the so-called "moon" glass or *luna*, and the "half moon," *demi-luna*.

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This glass was distinguished for its brilliancy, which may be attributed to the fact that it is manipulated but little in the fire, and hence retains its original gloss. In the middle of these round plates there is a thick spot that cannot be used. It is caused by the glass blower's pipe being attached there. A plate 4 feet in diameter will not cut larger plates than 18 or 20 inches square. This glass is made in England now only by Cance Brothers, and by Hartley & Co.

Toward the end of the 18th century, sheet glass appeared in Germany. In making this, the ball is stretched out to a cylinder, the end cut off, the open cylinder separated from the pipe, then cut open through its length and spread out on a flat table. This process is still employed in some glass houses in France and Belgium. The plates are placed while hot in an annealing furnace, which is then allowed to cool slowly.

At that time mirrors were also made of this window glass. For this purpose thick plates were made and polished on both sides. This work was entirely separate from the manufacture of glass, and principally in the hands of Jews. Two sizes of these mirrors were made, chiefly in Nuremberg, and were known in commerce by the name of "Jews" and "half Jews." The cylinder glass, as well as the moon glass of an earlier date, was made with potash mostly. In the 20th year of the present century its manufacture was improved in France by the introduction of a division of labor. The glass blower had a boy to help him; the annealing was done in a continuous oven provided with an iron wagon, so that the glass was gradually cooled by moving the loaded wagon away from the fire box; for flattening out the cylinders a special workman was employed, called in France *etandeur.* Glass cutters, *coupeurs*, were employed to cut the glass and *emballeurs* to pack it.

The manufacture was soon introduced into Belgium, where it grew rapidly. In 1856 there were in the neighborhood of Charleroi, Belgium, 100 glass furnaces, and now there are 180, almost as many as in all the rest of Europe. Belgium, thanks to her favorable situation, supplies nearly the whole world with window glass. Other countries, like England, Germany and France, which make glass, draw a portion from Belgium. Russia imports also from Germany. Window glass is manufactured in England and Switzerland, as also in Norway, Sweden, Spain, Portugal and Italy. but Belgium, as we have said, produces the largest quantity. Germany makes the best glass, especially Westphalia and the Rhine provinces. France makes the clearest glass and England the largest plates.

Up to 1860, the ordinary furnace with 6 to 10 glass pots was in use. Experiments were made now and then with Siemens' regenerative gas furnace, and in the last six years it has come into frequent use. At the present time, Bœtin's furnace seems to be preferred to Siemens'.

England has the largest furnaces; in Germany, France and Belgium the furnaces hold from 6 to 10 pots, 3 to 3½ feet high and of similar width, while the English use furnaces holding 6 to 10 pots, each 5 feet deep and 5 feet in diameter.

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In most countries wood is too expensive a fuel and has given place to coal. Belgium has the best coal for window glass, as it contains less sulphur than the German coal. For this reason the Germans use what they call drums, *trommeln*, heated independently of the glass furnaces, where the half-finished cylinders are warmed in a strong smoky flame. With this smoking flame the sulphur in the coal does less injury to the red-hot glass. The plates when finished, are cooled on iron wagons, of which there are 10 or 12 in each annealing oven, and each holds 10 or 12 plates of glass.

Within the last three years, a new annealing furnace has been built in Belgium, the 10 to 12 wagons being replaced by a system of levers, so that each separate plate is moved the length of the oven from the fire as a new one is introduced. In this way the cooling takes place more rapidly. Formerly an oven held 100 to 120 plates as long as it was in operation; now there are not more than 10 in it. This new system is gaining ground and being introduced into new glass houses.

Cheap freights in Belgium, as well as a favorable position, increase the difficulty of competition with it by Germany.

Cast plate glass long since took the place of blown glass for mirrors. The latter was quite greenish, while the former is almost color less, and hence reflects a more correct image. The manufacture of plate glass, sustained by immense capital, has made wonderful progress. About thirty years ago, Berliners were astonished over a piece of plate glass, about three square meters in size, of royal Russian manufacture, sent as a present to the King of Prussia. In the London Exhibition of 1862, plates were exhibited four times as large as this. The oldest and largest French mirror and plate glass works are those of the St. Gobain Company, whose factories are situated at St. Gobain, Ciry and Molucon, in France, and at Aix la Chapelle, Stolberg and Mannheim, in Germany. England has factories at St. Helberg and on the Thames; Belgium that of Floresse, at St. Marie d'Oignies. In North Germany there has been one at Gruenplan. At present a large factory is being built in Gelsenkirchen, Westphalia. All these also make the rough glass which is used for roofs and vault covers.*

Toward the end of the fiftieth year of the present century, the colored cathedral glass was first made by Hartley & Co., in Sunderland, England. It is cast on an iron table and rolled like plate glass. This renders both sides of the glass rough and uneven, so that the light which falls on it is diffused. This gives a softness to the light, and hence it is used wherever this effect is desired, as in churches and the like. Since 1862 it has been made by Wisthoff & Co., in Kœnigsstehle, and since 1864 it has also been manufactured in France.—*Journal of Applied Chemistry.*

* In addition to the above mentioned, there is an extensive establishment at New Albany, Indiana, The Star Glass Works, which makes a very superior article of plate glass, of the largest sizes, besides the rough glass for roofs and vault lights. During the session of the A. P. A at Louisville, in September last, we with other members of the Association, had the pleasure of a visit to this establishment by invitation of the proprietors.—[Editor of The Pharmacist.]

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A NEW TONIC—"BOLDO."

Researches have been made by Messrs. Dujardin, Baumetz, and C. L. Verne on this proposed addition to our list of medicines.

Boldo is a tree found in Chili of a height of five or six feet, isolated on mountainous regions, with yellow blossom and a verdant foliage. Its barks, leaves, and blossom possess marked aromatic odour, resembling a mixture of turpentine and camphor. The leaves contain largely an essential oil. It contains an alkaloid which is already called "boldine." Its properties are chiefly as a stimulant to digestion and having a marked action on the liver. Its action was discovered rather accidentally—thus: Some sheep which were liver-diseased were confined in an enclosure which happened to have been recently repaired with boldo twigs. The animals ate the leaves and shoots, and were observed to recover speedily. Direct observations prove its action—thus, one gramme of the tincture excites appetite, increases the circulation, and produces symptoms of circulatory excitement, and acts on the urine, which gives out the peculiar odour of boldo.—*The Medical Press and Circular.*

PALM TREES AND THEIR PRODUCTS.

Of all the different races of plants known to botanists none is of more interest than the family of palms, and none is of more value to mankind, as their products are not only numerous and various, but also of great importance, entering largely into the domestic economy of millions of the human race. About 600 species are known to botanists, and by some it is estimated that probably 1000 species are in existence. They supply oil, wax, sugar, starch, edible fruits, distilled and fermented liquors, and their buds are used as vegetables; from their trunks timber is obtained for building purposes and ornamental cabinet-work, their leaves are used as roofing materials, from their fibres cordage and coarse cloth are made, and their fruit is used as food and for other purposes. Some of them grow 120 to 180 feet high; others, of slender, flexuose habit, have stems 500 feet long. Some have stems scarcely a quarter of an inch in diameter; others, again, have trunks from three to five feet in diameter. Some species inhabit the low, hot, and steaming valleys under the equator; others grow on cool mountain-sides, even up to the borders of the line of perpetual snow.

Of the genus *Calamus* three or four species yield the rattan canes of commerce; other species yield what are known as Malacca, Partridge, and Penang canes, used so largely for walking sticks; and from the fruit of another species is obtained the resin or drug known as dragon's-blood.

From some of the genus *Elais* is obtained the solid palm-oil which is imported in such large quantities from Africa to manufacture palm-oil soap and candles. These trees also yield large quantities of what is known as palm-wine.

The genus *Sagus* yields large quantities of the nutritious, starchy

substance known as sago, some trees yielding as much as 600 to 800 pounds each. This substance is also obtained from other genera, especially *Saguerus Saccharifera*, which often yields from 150 to 200 pounds per tree. In addition it yields a large quantity of juice or sap, which, when fermented, produces an intoxicating drink, or if boiled, produces a species of sugar. The timber is also very hard, and is used for building purposes. From the leaf-stalks are obtained strong black horse-hair-like fibres known as gomuti, from which cables and cordage are made; they are also used for stitching thatch, and for making brooms and brushes. The Indians make the arrows for their blow-guns from the midribs of the leaves, and a sort of writing pen is also made from them. At the base of the leaves is also found a soft woolly substance, called bam, used for calking ships and boats, stuffiing cushions, and also as tinder. The young growing terminal bud is used as a vegetable, known as palm-cabbage. Besides all these products, the unripe fruits are made into a delicious sweet-meat; when ripe, however, they are very acrid, and were used by the inhabitants of the Molucca Islands in preparing the blistering liquid known as "infernal water," which they use to torture their enemies with.

A species of wild date (*Phœnix sylvestris*) furnishes in India large quantities of sugar, it being estimated that over 2,000,000 pounds are produced every year from this source alone in Bengal. The common date-palm (*Phœnix dactylifera*), the tamar-tree of the Bible, is well known as producing the dates of commerce. There are over forty different varieties of it cultivated in Fezzan, in Africa, and it is said that nearly all of the inhabitants of that country live on them for three-fourths of the year.

The doom-palm of Egypt yields a dry, mealy fruit, which in color and taste resembles gingerbread; hence it is called the gingerbread-tree.

The *Caryota urens*, an East India palm, furnishes large quantities of sugar, and yields a copious juice, from which toddy is fermented. It is said that sometimes a hundred pints of juice are obtained from a single tree in twenty-four hours.

The *Ceroxylon andicola*, or wax-palm, of South America, produces a large quantity of vegetable wax; it exudes from the stem to such an extent as to completely cover it. Other species also produce it, but to a less extent.

The Gebang palm (*Corypha gebanga*) of the East Indies is one of the most useful of palms, and the manufacture of its different products gives employment to thousands of persons. From its young leaves baskets and bags are made or woven, sago is obtained from its pith, its leaves are used for thatching and making hats, shirts and fishing nets are woven from its fibres, its leaf-stalks are twisted into ropes, and its roots, being astringent but emollient, are used medicinally for the cure of diarrhœas.

The *cabeza de negro*, or negro-head-palm, of Brazil and Peru yields the now well-known vegetable ivory, which is used by turners as a substitute for the real ivory, and from which they manufacture

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the knobs of canes, parasols, toys, and other articles. In its earlier stages the fruit contains a clear but insipid fluid, which is drunk to allay thirst; it afterwards becomes milky and sweet, and finally hardens like ivory.

The beautiful Palmyra-wood is obtained from a palm called *Borassus flabelliformis*,

The narcotic or intoxicating betel-nut so largely used by Eastern nations is the product of *Areca catechu.* To such an extent is it used by them that ship-loads of the nuts are exported every year from Siam, Sumatra, Malacca, and Cochin China. The nuts also contain a great quantity of tannin, and are therefore used in some parts of India for dyeing cotton cloth. The timber, leaf-stalks, and fibres are also used for various purposes.

One species of the urucuri palm (*Attalea funifera*) yields the well-known coquilla-nuts, used for making door-knobs and handles of canes, umbrellas, and parasols. The fibres are nearly equal, for strength and durability, to piassaba. This last is the fibre produced by a South American palm (*Leopoldiana piassaba*) known as monkey-grass, or Pará grass; from it clothes-brushes and scrubbing-brushes are made; it is also made into standing-rigging rope and cables, and is remarkable for its strength and the power it has of resisting the rotting effects of water.

The fine large net-work covering of the spathe of *Maximiliana regia*, a South American palm, resembles in size and shape the tapering bags used for straining jellies, and is used by the natives as a ready-made bag for carrying various articles in. The bassu palm (*Manicaria saccifera*) produces a similar net-work covering to the spathe, which is used for caps and for making cloth.

Of all the palms, however, the cocoa-nut palm (*Cocos nucifera*) produces the greatest number of products useful to mankind. The juice obtained from its spadix or young growth when boiled yields a sort of sugar, called jaggery; when allowed to ferment, and then distilled, it furnishes the liquor called arrack. The fibres enwrapping the fruit are manufactured into the cordage called coir rope; they are also used in making door-mats, matting, and scrubbing-brushes. The wood is used for various purposes under the name of porcupine-wood. The juice or liquid contained in the nuts when green is sweet and milky; this is used as a beverage, and also for cooking purposes, as milk is used, in coffee and with rice. The soft albuminous matter contained in the fruit is eaten with a spoon, as blanc-mange is eaten with us. When the fruit has ripened and this albuminous matter has hardened, cocoa-nut oil is obtained from it by expression and other processes; this oil is used for the manufacture of soap and candles; it is also a good illuminating oil, far preferable to fish oils for that purpose. The young shoot is eaten as palm-cabbage; the leaves are used for thatch, for making fences, buckets, and baskets, for writing on, and for making torches; potash is obtained from their ashes when burned, and the midribs of the leaves are used as oars.

From almost every species of palm something is or can be obtained that is useful to man. In our Northern climate they are

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becoming great favorites for the decoration of our hot-houses and greenhouses, some of them being able to bear a very low temperature. The beauty of their foliage and the elegance of their growth particularly recommend them for decorative purposes, especially as house plants. They are free from insects, have thick, coriaceous leaves, grow freely, and are easily taken care of, and we especially recommend them as in-door plants to those who can appreciate elegance of form and a uniqueness of appearance which no other tribe of plants except ferns presents.

PECULIAR TOXIC ACTION EXERCISED BY THE COLCHICUM AUTUMNALE AT THE TIME OF FLOWERING.

BY I. PIERRE.

The author, in a letter recently communicated to the French Academy,* states that having plucked some fully-expanded flowers of *Colchicum autumnale* in order to examine them more closely, he was surprised to notice that after a few seconds his fingers had changed colour, and taken the livid greenish yellow tint characteristic af a corpse in a state of incipient decomposition. After about ten seconds the skin regained its usual colour. As the discolouration extended throughout the length of the fingers, and even beyond, the question arose whether or not it was caused by absorption by contact at the extremity of the fingers. M. Pierre therefore extended his hand over a large clump of flowers, having anthers two or three centimetres in length, and carefully avoided all contact. The same phenomenon was produced with the same rapidity, and disappeared as quickly when the hand was removed. The experiment was repeated several times, and by different persons, but always with the same result.

In order to investigate the matter more conveniently, M. Pierre had two large clumps of the colchicum flowers placed in pots and removed to his laboratory; but on repeating the experiment twenty-four hours afterwards the effect was not so obvious. Upon comparing the flowers capable of producing the phenomenon with those which appeared to have lost their power, it was noticed that the inactive flowers had commenced to fade, and that the pistils and filaments of the stamens were much paler in colour than on the preceding day, or than those of less advanced flowers. He therefore thinks it presumable that it is principally during or approaching the act of fecundation that the colchicum flower possesses in the highest degree the property above described.

What, then, is the substance in the flower capable of producing this effect, which disappears so rapidly? The author thinks it can scarcely be a solid or a pulverulent pollinic matter, or the colour produced would be more persistent, but that it is probably an extremely volatile substance which has not yet been studied. In this view he is

* *Comptes Rendus*, vol. lxxix., p. 633.

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supported by the fact that after a number of experiments, without contact, and without raising his hand to his mouth, M. Pierre experienced in the organs of taste a peculiar sensation [*sensation vireuse*]; whilst his assistant, using the same finger many times, experienced a numbness in it which was persistent during several hours.

The author proposes to investigate the nature of this singular substance, which probably plays an important part in the accidents attributed to fresh colchicum compared with the innocuousness of the stale or dried flowers.

In connection with this action of certain principles of the colchicum flower, the author remarks that in the Gâtinais, where saffron is cultivated on a large scale, some persons, especially among women and children, cannot work at plucking the flowers without suffering from the symptoms of a peculiar poisoning, which manifests itself externally in a swollen and bloated appearance.—*London Pharm. Journal.*

WHAT PROPORTION OF MERCURY IS CONTAINED IN THE "BLUE PILL" OF THE MARKET?

BY CHARLES B. SMITH.

What is the best process of separating mercury from Blue Mass, is the question which first meets us in finding an answer to the query. Several methods were suggested, and, after careful experiment, all abandoned, as uncertain, except that process by which the mercury is separated by distillation. Having decided as to the method, we took glass tubes, of half inch bore and about twelve inches long, closed at one end, and bent to an angle of about forty-five degrees. Into each of these we placed one hundred and eighty grains of Blue Mass of one maker, then fixed the tube in a holder, and placed the open end of the tube into a dish of water, while at the closed end we applied the flame of a spirit lamp. This gave us very unsatisfactory results, for we secured only about one-half of the mercury which should be contained in the quantity of "Blue Mass" used. Either our process was faulty, or we were disappointed in the quality of the Blue Mass we had been using, and we had been imposed upon. But upon makink a careful examination of the coal or cinder-like residue in the tube, we found it was still very rich in mercury, therefore we concluded that the flame of a spirit lamp in this case did not give sufficient heat to volatilize all of the mercury; when we applied the flame of a Bunsen burner, we obtained very satisfactory results, which sustained the high reputation the manufacturers of the Blue Mass under examination have always enjoyed.

The officinal preparation of Blue Pill consists of

One part powd. Licorice Root,
Two parts Mercury,
Three parts Conserve of Roses,

or exactly one-third of the whole consisting of mercury.

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Of samples from five American manufacturers and one from an English maker, we obtained the following:

The smallest quantity of Mercury was 57 grains.
" largest " " " " 62 "

The average being 59½ grains from 180 grains of Blue Mass. The exact quantity required in the officinal articles in 180 grains is 60 grains, being a difference of only ½ grain in three drams.—*Proceed. of the New Jersey Pharm. Assoc.*, 1874.

THE KOUMISS CURE.

The following interesting information respecting koumiss, the method of its preparation, and the koumiss establishments at Samara, is taken from a description written on the spot by a correspondent of the *Daily News*. Samara is the capital of a comparatively new government, carved out of the neighbouring governments of Simbirsk, Saratov, and Orenburg, and situated on the left bank of the Volga, on the borders of Orenburg, on the high road to Asia.

"It has long been known that the Tartar tribes inhabiting what is generally known as Independent Tartary (no longer, however, since General Kaufmann's visit particularly independent) and the nomad tribes scattered over its northern frontiers, the Turkomans and the Kirghis, as well as other tribes more or less akin to these, such as the half-nomad Bashkirs of Orenburg, all used fermentented mare's milk, which they call koumiss, not only as a beverage, but as a substantial portion of their daily food. It was reported to combine the nourishing properties of milk with the invigorating qualities of alcohol; indeed, among its other virtues it was said to exhilarate and to intoxicate. It came into the heads of some Russian medical men, of whom, I believe, Dr. Portnikoff, of Samara, to have been one of the first, that this koumiss might possibly possess medical properties as well. It was observed that consumption and its cognate disorders were unknown among the tribes who habitually drank koumiss. Starting from this observation, experiments were here made on the *vilia corpora* of consumptive patients, and with highly beneficial results. Upon this Dr. Portnikoff started a koumiss establishment at Samara. Its situation offered him many advantages. In the first place, from its position on the Volga, it was at least approachable, whereas Orenburg, the nearest spot where koumiss could be said to be indigenous, was the *ultima thule* of the civilized world. This new establishment on the Volga was the means, therefore, of pushing the koumiss outposts 300 miles westward. In the next place, it was observed that the pasturage at Samara was similar to that at Orenburg. It is supposed that the virtue of koumiss consists in a great measure in the rich quality of the mare's milk, which again is dependent, not only on the race of mares, but on the pasturage on which they are fed. All these are propositions which are more or less vehemently affirmed and denied by the different camps into which koumiss connoisseurs are divided. For my own part, without giving any opinion on so pro-

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found a subject, I would only venture in a very general way to observe that it is a very old idol of the human mind to mistake accidents for essentials, and to argue that, because things have been invariably seen in conjunction, they must necessarily be connected as cause and effect. However this may be, the *haute école* of koumiss connoisseurs mantain that koumiss, to be efficacious, must not only be composed of the milk of thorough-bred Tartar mares, but of thorough-bred Tartar mares fed on the rich covil of the steppes.

"For covil (*Stipa pennata*) is the technical name of the grass which grows on the steppes, and which is the favourite food of the mares. It flowers prettily in a kind of white silvery wave for about a month at the beginning of June, and makes a not ungraceful ornament for the hair, especially of blondes. It is only the tender grass, not the flower, of the covil which the mares graze on. In the midst of the covil the *Absinthium tartaricum* grows abundantly, emitting the sweetest smell. I could not help fancying that the two must form part of the vaunted pasturage of the steppes. It smelt so sweet that I thought if I had been a Tartar mare I should certainly have made it a *bonne bouche*. I was glad to hear that my error had been shared by a learned German doctor, who writing *à priori* in his study in Livonia on the medical properties of absinth, suggests that as it is found in large quantities on the steppes where the Tartar mares graze, part, at any rate, of the virtue of koumiss may be attributable to his favourite herb. It is to be hoped that the learned doctor's theory does not depend on his illustration, for it is, unfortunately, not founded on fact. The mares do not touch the absinth. The grass of the covil is their sole diet. The absinth, with its perfume, is there because the Tartar mare is an epicure, and she loves to regale one sense with the sweet odour of the absinth while the young blade of the covil ministers to another.

"The Tartar horse about whom all this fuss is made is the most insignificant-looking brute dignified with the name of a horse I ever saw. He exactly corresponds to the pictures one has seen, and the descriptions one has read, of the nondescript animals upon which the Cossacks were mounted during the invasion of France in 1812. Small, shaggy, and impoverished-looking, he hasn't the deviltry in his eye which distinguishes the little Shetland pony. It is only when he is in action that he gives you a taste of his quality. He then bristles up, buckles to his work, and you begin to perceive, when you have already been half a day's journey, the enduring qualities of the little animal you have been contemning. Many days' continuous travelling at the rate of 150 versts (100 miles) will give you some idea of his powers. Those who deny the indispensableness of covil will for the most part maintain that there is no saving grace in koumiss proceeding from aught but the milk of thoroughbred Tartar mares.

"There are koumiss establishments in Russia elsewhere than at Samara. At Czarsko Selo, in the neighbourhood of St. Petersburg, as well as in the Sokslniki environ of Moscow, there are similar establishments. At both these places, although the precious covil does not flourish, the Tartar-bred mare is alone in vogue. I visited

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both these establishments but fell in love with neither. In the first place the neighbourhood of a capital (and both St. Petersburg and Moscow are capitals) is an unfavourable situs for a 'cure.' The contrast of a medical establishment with the surrounding associations is fatal to it. All such establishments have a melancholy and depressing look about them. Phthisis, catarrh, and tubercles seem written on every brick, and labelled on every bottle. I felt that I should have an attack of 'nerves' if I stayed there ten minutes, and that all the Tartar mares in Russia could not restore me. If you are unlucky enough to require a 'cure,' go bury yourself alive as far from the habitations of men as you can; flee from the very neighbourhood of a city, far more a capital. Consider that situation the best which offers you the fewest resourses, otherwise your labour is likely to be in vain, and your 'cure' a mockery and a delusion. All these advantages I may mention, are pre-eminently secured at Samara.

"Besides these establishments at St. Petersburg and Moscow, Dr. Stahlberg, formerly at the head of the Moscow establishment, has set up a similar one at Wiesbaden, maintaining that the covil is all humbug, and that it is 'the breed that does it.' The skeptical analysis is carried still farther; for in London there is a Russian (Polish) medical man, Dr. Yagielski, an authority on koumiss, who goes so counter to the received notions on the subject as to deny not only the indispensableness of Tartar mares for the production of koumiss, but even of mares at all, actually giving the preference (tell it not in Gath and whisper it not in Samara) to the domestic cow. But I must leave the cow-produced koumiss to its fate, and proceed with my description of the genuine covil-fed Tartar-bred mare's milk, koumiss. The process of manufacture is the following. I may mention that it is Bashkir girls who are generally employed to make it. It is their national beverage, and they best understand it. Being less wild, too, than the nomad Khirgis, it is easier to 'catch' this particular Tartar specimen.

"Koumiss is fermented mare's milk. An element of fermentation is consequently required for its manufacture. This is supplied by koumiss itself. A certain proportion (one-third) of koumiss is poured together with (two-thirds of) fresh mare's milk into a clean wooden vessel resembling an ordinary English churn, and there left for from six to eighteen hours, according to the degree of (alcoholic) strength that is required. During this period it is from time to time subjected to a churning process, with the object of keeping up and stimulating the process of fermentation. Herein consists the chief art, and whatever secret there may be in koumiss-making is to know the exact amount of churning required; for, although a certain amount is requisite, it must be suspended at the point where curds or butter would be formed. Habit and practice alone teach this to the koumiss-maker. After this fermenting process, stimulated by the occasional churning, has lasted a certain time, say six hours, a portion of the contents of the churn is drawn off, and this constitutes the weakest kind of koumiss, say koumiss of the first degree of strength. The remainder in the churn is subjected to a further period of similar fermentation and churning, say for another six hours, and then the churn is again

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tapped, and koumiss of the second degree of strength is the result. Then another period of say six hours of a similar process for what still remains in the churn, and this, when drawn off, constitutes koumiss of the third degree of strength. It will be observed that the difference in the degree of strength of the koumiss consists in the different amount of fermentation to which it has been subjected. The strength of the koumiss ought to be graduated according to the requirements of different patients, and this is a matter of some importance in the case of invalids. As soon as the koumiss is drawn off it is poured into ordinary quart bottles, made with extra strong necks, corked down, and tightly strung; for, containing as it does large quantities of carbonic acid gas, it is subjected to the explosive accidents of all such liquors. Indeed, the inexperienced koumiss drinker, on opening a bottle of koumiss for the first time, if he is lucky enough not to loose his eye by the explosion of the cork, will most undoubtedly be soused all over by the frothing liquid.

"I have mentioned that the koumiss itself is the fermenting element used in the composition of koumiss—one-third koumiss for two-thirds fresh mare's milk. It may be asked, when koumiss is not obtainable (as at the beginning of the koumiss season), what substitute is used? A couple of table-spoonfuls of yeast are put into an ordinary-sized quart bottle, filled with mare's milk which is allowed to ferment for twenty-four hours. The contents of this bottle are then poured into double the quantity of fresh mare's milk, and allowed to ferment for twenty-four hours more. Then twice the amount of fresh mare's milk is again added, the whole fermenting for twenty-four hours more. Thus a sufficient amount of the fermenting element is obtained to begin operations, the proportion 1 : 3 being always maintained between the fermenting element and the fresh milk. Some patients drink as much as six or eight bottles of koumiss a day. Some subsist entirely on it; but, generally speaking, people eat their ordinary meals, and drink koumiss between. It has a sharp and bitter taste, caused by the lactic acid, which it contains in large quantities; and the strongest sorts of all leave a kind of soft buttery after-taste, which, however, the carbonic acid gas helps to dissipate. Some people never can get over their dislike to the taste of koumiss, and those it is never likely to benefit. The complaints for which koumiss is considered beneficial are consumption and, it may be said generally, all affections of the mucous membrane. It is, of course, a mistake to suppose koumiss a specific for consumption. It is nothing of the kind. People sometimes go to Samara in the last stages of that disease, when neither koumiss or anything else can be of avail. But in the early stages of consumption it often effects, by its strengthening properties, a beneficial change in the organism of the patient, and helps to arrest the ravages of the complaint. Where, however, it is of sovereign efficacy is in cases of recovery from a long and wasting illness where no organic detriment exists. Often, in such cases, after a couple of months of koumiss-drinking the system is braced up, the blood streams more quickly through the veins, the pulsation increases, nd a general feeling of *bien-etre* pervades the whole man. Not that

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I feel inclined to attribute the whole benefit which is derived from a cure at Samara to the properties of koumiss. The fine, dry, rarefied air of the steppes has undoubtedly something to do with it. The lungs are called into active play, and lend their assistance to the general recuperative process.

"You *feel* the dryness of the air at Samara. In the higher parts of the steppes there is no dew. The most delicate and consumptive patient can admire, with impunity, the beauties of the setting sun—and the sunsets are very beautiful at Samara. He is not obliged, as in Italy, to flee that treacherous hour: he can sit out of doors without risk, and watch that setting sun reflected on the Jigoulee hills which here skirt the Volga, fringing with gold the clouds that crown the summits of those glowing hills, and lighting up the whole expanse of the river with liquid glittering fire. There is no fixed duration for a 'cure' at Samara. The average stay of patients is two months, but as koumiss is rather a diet than a medicine, their stay is often prolonged beyond this period. The weather is the chief regulator in this respect. Fine hot weather is considered essential for a 'cure.' June, July, and August are the finest months. The koumiss establishments, of which there are three principal and several smaller ones at Samara, are situated at distances varying from six to twelve versts (four to eight miles) from the town, and are composed not of single blocks of buildings, but of little detached houses, mostly built of wood, containing from two to six, and rarely as many as eight rooms each, the whole connected with, that is, surrounding a larger building which is the kursaal of the little colony, or, where a kursaal does not exist, a central kitchen which ministers to the culinary requirements of the whole. When there is a kursaal, the patients can either dine there at a *table-d'hôte*, or separately in their own apartments.

"I have used the term 'colony' to describe these koumiss establishments. It best depicts the effect which they produce on one at first sight. There, in the midst of the desert steppe, with few signs of human habitation around, you suddenly come upon a little oasis, surrounded by a paling, and dotted about with a number of little single-storied wooden houses, resembling overgrown mushrooms, with zigzag walks or terraces cut in every direction, and queer-looking people, men and women, walking about—all drinkers at all watering-places are peripatetics—with a quart bottle in one hand and a large mug in the other, and you know that you are at a koumiss establishment.—*London Pharm. Journal.*

MUSHROOMS.

In London, a gardener was charged with murdering a fellow-servant by giving her poisonous mushrooms to eat. The grand jury refused to find an indictment, since there was no reason to suppose that the fungi were given with felonious intention. They were so much like mushrooms that an expert witness could hardly distinguish them. The fatal mistake of toad-stools for mushrooms is so common

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in this country that the advice of the judge who presided in the trial of the case mentioned might well be taken here. He called attention to the necessity of giving wide publicity to the fact that mushrooms growing under trees are dangerous, and called attention to the characteristics by which edible and poisonons species of fungi may best be distinguished. The edible mushrooms grow solitary, in dry, airy places, and are generally white or brownish; they have a compact, brittle flesh; do not change color, when cut, by the action of the air; juice watery, and odor agreeable; taste not bitter, acrid, salt, or astringent. The poisonous mushrooms, on the contrary, grow in clusters, in woods, and dark, damp places, and are usually of a bright color; their flesh is tough, soft, and watery, and they acquire a brown, green, or blue tint when cut and exposed to the air; the juice is often milky, the odor commonly powerful and disagreeable, and the taste either acrid, astringent, acid, salt, or bitter.

THE SANITARY RELATIONS OF PHARMACY.

Read at the annual meeting of the American Health Association at Philadelphia, Nov. 13th, 1874, by Prof. John M. Maisch, Secretary of the American Pharmaceutical Association.

The subject which the writer has been invited to discuss before the American Public Health Association is of vital interest to every individual. Regardless of age, sex, or station in life, every one is, to a greater or less degree, dependent upon pharmacy and its followers for the restoration or preservation of his health. Not only when a physician is called in to prescribe for the sick is the safety of the patient entrusted to the pharmacist's hands, but almost daily has he occasion, in the legitimate pursuit of his business, to use his business capacity, or his practical and scientific knowledge, for the weal or woe of his fellow man. It is not merely the possibility of making an oversight or mistake, involving the life or health of his customer, but it is almost altogether a question of his positive knowledge and of his capability to recognize the crude drugs, to judge intelligently of their quality and purity, to convert them properly into the various galenical preparations and extemporaneous compounds, to preserve them unaltered for the longest period, and to ascertain promptly even the incipient deteriorations, particularly if tending to affect their curative powers; of no less importance is his knowledge of the average adult doses in which medicines are employed, and—in general terms—of their medical properties.

The habitual exercise of ordinary care and circumspection will, at an early period of his professional and business career, be regarded by the pharmacist as his paramount duty, and, if well understood, suitable precautions will be taken in all the varied duties pertaining to the laboratory or the officin. Of the errors and mistakes occasionally occuring in pharmaceutical stores—more frequently, it is believed, in bygone days—a very small number only are directly and solely attributable to want of proper care. While it is true that culpable negligence exists in some stores, it will be found that mistakes occuring in consequence thereof, in nearly every instance, might have been avoided if the guilty party had possessed sufficient knowledge of the physical properties of the article, and been able to recognize and distinguish it from others of similar appearance.

Man is liable to err, and the pharmacist forms no absolute exception to the rule. His training commencing with his appenticeship, and continuing until the close of his business career, is directed toward the avoidance of errors and mistakes by himself, and to detect them if committed by others, be it in the incorrect label attached to the purchased drug or chemical, or in the incorrect name or overdose ordered in a prescription. Continued watchfulness being an acknowled ge

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and well understood necessity in his business, it soon becomes a habit with the pharmacist, and hence cases of error are rare which can be referred only to inadvertance, preoccupation of mind, or similar causes. On close examination it will be found that nearly all mistakes occurring in drug stores should be charged to a want of or to insufficient knowledge, as a careful analysis of the published cases of druggist's mistakes which have occurred in this country will show.

While on the one hand it must be granted that a proper education for his profession will reduce the liability of the pharmacist to make mistakes to that mininum which is conditioned by human nature, and which an unceasing watchfulness will reduce almost to an impossibility; on the other hand it must be obvious to all that the public is to at least an equal extent interested in the qualification of pharmacists as far as the quality of the drugs and all medicinal preparations are concerned.

There was a time when in Europe medicinal articles were manufactured especially for the American market, which could not be sold there, but were considered good enough for this side of the Atlantic. And it must be admitted that thirty years ago the United States furnished a much better market for adulterated, inferior, and worthless drugs than at the present time. In 1848 Congress passed a law, which is generally designated as the drug law, providing for the appointment of drug examiners at the various ports of importation, whose duty it became to examine all drugs and chemicals imported from abroad and to reject the deteriorated and adulterated. This law has had a very beneficial effect in excluding from our markets many inferior and valueless articles, and its operation would doubtless have been still more satisfactory if the appointing power had always considered the scientific and practical qualifiations of the candidates rather than their political services. It cannot be denied that some of the drug examiners appointed during the twenty-six years of the operation of this drug law were totally unfit for the position, not being able to identify or judge of the quality of drugs in every day use, while others were thoroughly qualified, and discharged their occasional disagreeable duties without fear or favor. The importance of having the right men in the right places was recognized at an early date by the American Pharmaceutical Association, which in fact was organized after an exchange of views on the drug law had been had by the representatives of pharmaceutical bodies; and, in the year 1852, that association passed the following resolution, which, however, had very little, if any, effect.

Resolved, That inasmuch as the usefulness of this law will be proportioned to the ability and conscientious discharge of duty of the examiners, that this convention shall respectfully and urgently represent to the appointing power the cardinal importance of preventing the removal of qualified examiners on mere political grounds.

But notwithstanding the drawbacks pointed out in reference to the appointment of qualified examiners. and some other defects of perhaps minor importance, this law has been one of the most important means of improving the drug market of this country, by excluding inferior and worthless articles from entering the country. In older countries, and in those in which pharmaceutical matters are better and more effectually regulated than with us, foreign drugs of all descriptions and varieties may be met with in the market, and no doubt ultimately are put to some use, which does not entail too large a loss upon the importer, although it may be to the direct detriment of the consumer. In those countries the pharmacist is, by stringent laws, made responsible for the quality of his drugs and preparations, whether they be imported or of home production. With us the responsibility of pharmacists is regulated mainly by common law, and is based upon the amount or degree of harm done. Our national Drug law, by the manner in which it is executed, is not able to totally exclude inferior drugs from entry; and if once entered for consumption it cannot reach the cases of home adulteration which properly should be referred to the Police regulations of the individual States; and which at present are, in most States, merely liable to respond in an action for damages, while in reality the responsibility should attach to the quality. The Philadelphia Pharmacy act of 1872 makes it a misdemeanor "to mix or cause to be mixed with any medicinal substance any foreign or inert substance whatsoever, for the purpose of weakening or destroying its medicinal power or effect, or to willfully, knowingly, or fraudulently sell the same for medicinal purposes," the

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penalty being a fine not exceeding $500, and the confiscation of the adulterated articles. The need of a similar law has been felt in Great Britain, and resulted in an Adulteration of Food act, passed by Parliament three years ago, which, however well intended, appears to be too crude and indefinite for its adoption to be recommended by us.

The improved condition of our drug market is only in part due to the operation of the inspection law, cited before; as the main cause of this improvement should be regarded the progress of popular intelligence in general and the increased educational facilities of the pharmacist in particular. Our market now furnishes as good drugs as can be found elsewhere, and that they meet with a ready sale is evidenced by the quantity imported, and the number of wholesale houses keeping them on hand. Yet the question may be asked here as well as in other countries, what becomes of the second and third rate drugs? To the experienced this question is not very difficult to answer, so far as our country is concerned; there are many ill-informed apothecaries in small and large places, and many medical practitioners in the country, furnishing medicines to their patients, who possess little or no knowledge of drugs, and who are willing to purchase, provided the article be a little cheaper than it can be obtained from another house. These are the main, perhaps the only, outlets for the cheap and inferior drugs.

The cheapness of so-called officinal medicinal preparations is always an argument in their favor on the part of the same class who purchase crude drugs because they are cheap, and who are little influenced by the reflection that a galenical preparation cannot be sold at a less price than the cost of the articles which are pretended to enter into its composition. There are now, perhaps, several hundred of so-called manufacturing pharmacists in the United States, some turning out unobjectionable products as far as quality is concerned, while the products of others are inferior and unreliable, all, however, having the tendency to encroach upon the legitimate vocation of the pharmacist, and to aid in closing the laboratory of the latter. This state of things has not come suddenly upon us; it has gradually grown from insignificant beginnings, and its existence is due in part to the ignorance or indolence of a certain class of pharmacists, and in part to the support received from many members of the medical profession. It is not uncommon for physicians to prescribe A's extracts, or B's fluid extracts, or C's pills, instead of insisting on getting these articles, if officinal, prepared so as to represent the intention of the pharmacopœia; and if favorable results have been obtained with such a preparation a history of the case may sometimes be found in the medical journals, with the manufacturer's name attached in such a manner as to lead unthinking practitioners to infer that peculiar virtues are connected with a preparation because it has been made by or under the supervision of a certain man.

Another circumstance has contributed to increase this evil. Though justifiable perhaps from a purely commercial standpoint, the publication, by manufacturing pharmacists, of so-called medical journals is detrimental not only to the progress of medicine and pharmacy but likewise to the best interests of the public. Donning a professional garb, they are usually filled to a considerable extent with reports of cases benefited or cured by one or more of the special preparations of the manufacturer, and being obtainable for a mere nominal price, or even distributed gratuitously, such journals find their way to just such places where a demand for their owners' preparations can be created or increased. Suppose that this movement has been inaugurated with what may be regarded as perfectly legitimate preparations, it is soon followed by so-called specialties and elegant pharmaceuticals, which are imposed upon the physician and the public, and which, though their composition is stated with an appearance of frankness, in too many cases scarcely differ from the vile nostrums which every true physician would shun to prescribe, and every upright pharmacist would refuse to have his name connected with.

And has there been nothing done on the part of pharmacists to counteract this increase of semi-secret medicines and preparations sailing under false colors? We believe that a great deal has been accomplished, or at least attempted. Some of these compounds have been examined years ago, and upon the result of the analysis their advertisements were promptly banished from the columns of the few pharmaceutical journals of our country, while at the present day the advertising

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pages of many medical journals are open to them, simply because they have not the appearance of nostrums.

In some cities the prescribing of elixirs of different makers had become such a nuisance that pharmacists were compelled to keep in their stores half a dozen different preparations, all bearing the same name, to gratify the whims or predilections of the prescribers. Several local pharmaceutical societies endeavored to create order in this chaos, and devised and adopted formulas to meet the apparent demand, but met with rather indifferent success. The American Pharmaceutical Association, with the view of overcoming the difficulties, adopted a series of formulas for these preparations, in the month of September, 1873, and they were communicated to the secretaries of all the medical societies throughout the United States, yet the answers received did not exceed six in number. This apparent indifference is to be deplored, but how can it be remedied? The formulas may perhaps not be the very best that can be devised, or that meet the taste of the largest number of patients; but it was a move in the right direction in so far as it attempted a uniformity in composition and reliability of a large class of preparations throughout the United States.

This subject brings us to its next kin, the popularly so-called patent medicines, the preparation of which is kept secret, but whose pretentions are, for that very reason, without bounds. It cannot be our purpose to inquire whether the largest number and the most successful ones have been originated by physicians, pharmacists, or totally ignorant pretenders; nor do we intend to compare the number of physicians prescribing one or more with the number of pharmacists advertising themselves as agents, or pushing their sales by almanacs, handbills, and show-cards. The evil exists; the easy *noli me tangere* way of bygone days is no longer justifiable. The infant is fed with "soothing" and "teething" syrups containing morphia, and laying the foundation for a taste for opiates in maturer age, if that should ever be reached; the "golden pills" and "female mixtures" invite directly to the crime of abortion by cautioning females not to use them while in the state of pregnancy; the victim of syphilis finds his constitution totally shattered after *curing* his vile disease by the free use of mercurial preparations, which are *warranted to be free from mercury and other poisonous drugs;* the poor consumptive imagines his hacking cough relieved by the "unfailing cure for consumption," and the tartar emetic contained therein merely hastens the unavoidable dissolution and opens the grave before the disease has run its natural course. There is scarcely a nostrum which is not calculated to do infinite harm, be it in consequence of the powerful medicines contained in it or injudicious use by the public.

Various measures have been proposed to counteract the bad effects of secret medicines. The most radical and effective cure would be their total abolishment, if this was possible. The writer is not an advocate of prohibitory measures generally, and as far as this particular case is concerned he believes that the experience of Germany and some other European countries is averse to effectiveness. The French plan of registering the formula for the medicine with a central medical authority, and imposing heavy fines upon any deviation therefrom, invests the preparation with a certain recommendation, which goes far toward gaining for it the confidence of the public. Perhaps the least objectionable plan, if that could be accomplished, would be to compel the manufacturer to have the full composition, or working formula, plainly printed upon the label of every package.

It must also be borne in mind that in a country like ours there must naturally exist a necessity for domestic medicines, because outside of the cities and the more populated districts it is often impossible to secure the services of a physician except after hours of delay. This demand seeks to be satisfied, and since it has not been done in what might be said to be a professional way, every pretender finds an open field for his enterprise and luck. Many years ago the writer heard from the lips of his lamented friend, the late Prof. William Procter, of this city, a proposition—whether original with him he is not prepared to say—which has been recently advanced from other parts, and seems to be eminently qualified to displace most of the nostrums. We give it in the plain language in which it was put, about a year ago, by the Atlanta *Medical and Surgical Journal:*

"In the way of remedy for these acknowledged evils, we suggest that the medical profession recognize the want of household remedies by publishing authorativ

formulæ for the use of pharmacists, who may compound them at their counters, and keep them on hand for the ready and convenient supply of all the real wants of families and individuals in this direction."

Such a measure would go far toward abolishing a large number of nostrums; but it would be advisable not to neglect the direct instruction of the public by furnishing tracts on sanitary subjects either at a mere nominal cost or for gratuitous distribution; by the delivery of popular lectures, devoid of technicalities, and by instructing the rising generation in the more advanced classes of our public schools in the means of preserving the health, and in the dangers of the injudicious use of drugs. Dr. F. Hoffmann, of New York, has recently, in the Chicago PHARMACIST, pointed out a way by which the public can be readily reached, which has so much to recommend it that it is deemed proper to insert it here. He suggests that some enterprising publisher arrange to annually edit an almanac containing generally useful information and statistical notes about sanitary and health matters and requirements, brief directions for the prompt application of antidotes to the common poisons in daily use in domestic economy, in arts and trades, first help in accidents and emergencies, popular essays on the absurdities and dangers of the nostrum traffic and its origin, the composition of nostrums which have been analyzed, &c., &c. The cost of such a publication might be covered by the pharmacists subscribing, with the view of distributing them gratuitously, for any number desired, upon the cover of which their business cards might be inserted. To the writer this appears to be a very practical plan, and one which could not fail to do much good.

The writer has endeavored to give in a few hasty strokes a picture of the relation of pharmacy in the United States to public hygiene. To complete it it is necessary to state that there are about ten institutions in the entire country devoted exclusively to the education of pharmacists. This number is inadequate, and at the same time it is well to point out how necessary it is to exercise due caution in the establishment of new schools, so that the errors may be avoided the deplorable effects of which have made themselves felt in other professions.

To judge from the circulation of the journals devoted entirely or partly to pharmacy, at least one-half of all the pharmacists in the United States do not read any pharmaceutical periodical, and lag behind in this age of uninterrupted progress—a sad commentary on the proposition with which we started, that the pharmacist's qualification for his vocation is shown in his positive knowledge. Good and reliable pharmacists may be found in most places; the pharmaceutical colleges have done their best to prepare those presenting themselves for instruction; yet many cannot avail themselves of the opportunities offered, while others have, at least heretofore, felt indifferent, although they had the facilities before their very doors. It is, therefore, fair to ask the question whether the pharmacists have felt their responsibility, and whether they have done anything toward bettering the condition of pharmacy and securing to the public greater indemnity against the dangerous results flowing from ignorance and superficiality.

In answer to this it is proper to state that in 1864 the American Pharmaceutical Association urged upon our legislators the importance of a judicious, but certain determined, and, as far as practicable, uniform control of pharmacy in the various States, and offered the services of its officers to the State Legislatures and Constitutional Conventions, whenever the co-operation of the association might be deemed desirable or useful. This resolution was communicated to the Governors and the presiding officers of the Legislatures of all the States in the Union, and in 1868 a report was laid before the association, containing copies of, and reviewing critically, all the laws relating to pharmacy in the United States which could be collected. This report resulted in the appointment of a committee, directed to draft a law to be submitted to the various States, which was accomplished in 1869, and copies of the two reports were sent to the Governors, Legislatures, and leading Judges of all the States.

Since that time a committee of the American Pharmaceutical Association is annually appointed for the purpose of collecting the laws relating to pharmacy, which may be enacted, and, if necessary, of co-operation with the proper authorities. The reports of this committee, together with the laws, are published in the annual proceedings of the association. I may be permitted to make the following abstract from the documents mentioned:

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In two of the States, Georgia and Alabama, there are old laws on pharmacy, which were long allowed to be dead letters, but are now beginning to be enforced; the granting of licenses to apothecaries, upon their passing a satisfactory examination as to their knowledge of drugs and pharmacy, is made the duty of medical boards.

Besides the pharmacy laws, which since 1870, were introduced in the Legislatures of ten or twelve States, but which failed to pass for various reasons, during the last five years laws intended to regulate the practice of pharmacy have been enacted in the following States:

Rhode Island, 1870 and 1871, applying to the whole State; board appointed by the Governor.

Maryland, 1870 and 1872, applying to Baltimore City; board appointed by the Governor, upon the recommendation of Maryland College of Pharmacy.

New York, 1872, applying to New York City; board appointed by the New York College of Pharmacy. (In 1871 a pharmacy bill was passed which was so obnoxious in its provisions that it was repealed the following year.)

Pennsylvania, 1872, applying to Philadelphia City; board appointed by the Mayor.

California, 1872, applying to county of San Francisco; board appointed by the California Pharmaceutical Society.

Ohio, 1873, applying to cities of the first-class, of 175,000 inhabitants; board appointed by the Court of Common Pleas, from nominations made by the incorporated College of Pharmacy, or Pharmaceutical Society.

Missouri, 1874, applying to St. Louis City; board appointed by the St. Louis College of Pharmacy.

Kentucky, 1874, applying to towns and cities of 5,000 or more inhabitants; board appointed by the Governor from nominations by the Louisville College of Pharmacy.

These new pharmacy laws resemble each other in this respect, that they require of the proprietors of stores, and some also of the assistants, a practical and theoretical knowledge of pharmacy and its collateral branches, which is determined by an examination before the Pharmaceutical Examining Board. Upon passing this examination a certificate is granted entitling the holder thereof to practice pharmacy either as proprietor or assistant in the city or State in which it has been issued. Graduates of the recognized pharmaceutical educational institutions in Europe and this country are registered without further examination. The boards are composed of pharmacists, New York requiring that three of the five pharmacists constituting the board shall be graduates of some legally-constituted medical college, the remaining two of a pharmaceutical college. The New York law is the only one permitting the registration, without examination, of physicians to act as pharmacists.

As a general rule the laws have been cheerfully complied with; in a few places prosecutions had to be instituted under these laws to enforce compliance. In the City of Philadelphia this has thus far been neglected, there being, as we understand, a difference of opinion in regard to the proper officers to commence legal proceedings.

Full reports of the proceedings of all the Pharmaceutical Examing Boards have not been published; however, from private information, and from the few published reports, the number of rejections by the boards may be computed to be about twenty per cent. of all the applicants.

Within a few years two important laws were passed relating to the sale of certain medicines. The law of Pensylvania, approved March 16, 1870, is entitled, "An act to prevent and punish the publication of obscene advertisements, and the sale of noxious medicines," the former referring to publications relating to the cure of venereal and of female diseases, the latter to the selling or keeping for sale of so-called female medicines, and of medicines and instruments for procuring abortion, &c. This law is practically a dead letter, no prosecutions having taken place under it, and forbidden advertisements being found in a number of newspapers.

The Illinois law, approved March 27, 1872, is entitled, "An Act to prevent the sale of drugs or medicines designed to procure criminal abortion." It forbids the sale of ecbolic and abortifacient medicines, except upon the prescription of a

physician; and no compound intended for female complaints is allowed to be sold unless five well known and respectable physicians of the county have testified under oath that it is not of an abortifacient character. This law is likewise entirely inoperative.

Provisions regulating the sale of poisons are incorporated in several of the Pharmacy acts referred to above, and in most States special laws are in force, but nearly all inoperative. The laws generally provide for a registration of every sale of poison, the list of poisons in many being incomplete or very inaccurate. It is very difficult to suggest a plan by which a general compliance with the regulations of these poison laws can be secured; the vague direction of some that these registers shall be open for inspection by police officers or by physicians amounts to very little, but on the whole I think it will be found that the higher the qualifications of the pharmacist, the more effectual will be his precautions not only in the sale of poisons, but also for their storage in his establishment.

From whatever standpoint we may look upon American pharmacy in its relations to public health we shall find that the speediest, most effectual, and, to the public, least expensive method of securing all the advantages that may reasonably be expected from it in health and in sickness will be to insure the proper qualification of the pharmacists. This is one of the main purposes of the local pharmaceutical associations, and also of the national representative body of pharmacists; to accomplish this among kindred objects, these societies have earnestly labored for years, and in their efforts deserve the support of all having the welfare and safety of the public at heart.

EDITORIAL.

To Our Readers:

This number closes the seventh volume of The Pharmacist, and as we look back to the time, when the subject of publishing a pharmacal journal in this section of the country was first broached, and the project duly carried out by a few earnest working members of the Chicago College of Pharmacy, we involuntarily exclaim, "How time does fly!" In taking a retrospective view of our amateur journalistic labors, we find much that could have been done better, and, therefore, feel grateful for the very kind consideration shown us by the profession, in not only overlooking our shortcomings, but encouraging us in the work by words of cheer, and with the more substantial article *money*, the latter of which is a necessary requisite in such an enterprise.

We hope that the coming volumes may merit a continuance of the good will shown us in days gone by; and it will be the aim of the editor and publishers during the coming year to increase their efforts so that in the course of human progress and the advance of science, The Pharmacist will be found in the front rank.

The success and popularity of a journal is never accomplished without the co-operation of its readers and those directly interested in the cause for which it labors. The Pharmacist calls upon all who are willing to do what they can for the advancement of the art of Pharmacy, to contribute, each in the manner most appropriate according to his ability. Many who have never before done so, can write something of interest and benefit to others, and all can contribute to its success by paying their subscriptions promptly, and making a little effort to induce others to subscribe. The price of the subscription for

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the coming year has not been advanced, although the postage will be prepaid by the publishers, and the price is so low that no pharmacist can afford to be without it. It would not be consistent with economy to endeavor to save a dollar and a half a year by doing without this journal. How true the proverb—"*There is that scattereth, and yet increaseth; and there is that witholdeth more than is meet, but it tendeth to poverty.*" It is not enough that a pharmacist subscribe to one publication in the interests of his business, but progressive pharmacists should take them all, and many do so, preserving them for binding and future reference. In conclusion, let us ask all to throw aside indifference, prejudice, or whatever obstacle has heretofore been in the way, and to devote some portion of their time and talents to the good of the cause, and by all means let us hear from them in some way or other. If any think we have not variety enough, let them send us some. If they have practical receipts of value, not generally known, we will be glad to publish them. If they have discovered a new or improved process or combination, let them generously give their experience to their brethren in the profession. To all we wish happy holidays and many returns.

For want of space we must omit in this number several original communications, book reviews, etc.

Our prediction in regard to koumiss as stated in the last number of the PHARMACIST has already come to pass. The medical profession has furnished the champion for this new novelty of "elegant pharmacy," and this advocate loudly proclaims its miraculous merits in a seven page article published in the *Chicago Medical Journal* for November. The author seems to have pursued his researches regarding the literature of koumiss with great energy and zeal, having as he says consulted all the authorities from the year 1787 to 1874, "and after many trials and much patient labor," he has settled for all time to come, the very important question regarding the origin and early history of koumiss. Although the paper as published is very exhaustive, yet one important fact pertaining to the subject, the investigator has omitted citing, namely that of giving a formula or process whereby our maiden aunts or grandmammas can make this health invigorating beverage. The doctor, however, has attempted to make amends for this omission by informing us that a koumiss factory is in full blast in the city of Chicago; and, so that no one shall go astray, in getting the product of the "brindle cow," he has given us the exact number of the street on which the factory is located. Evil-minded persons might intimate that the doctor had an interest in the factory, and it may come to pass that the public press get up another sensation, by claiming that there exists a collusion between the medical profession and the koumiss factories. To avoid any charges of this character, we will state that we know that this practice does not exist in Chicago, and to prevent any such pernicious practices creeping into usage, we publish in another part of the present number an article upon koumiss and its dairies, written by an eye-witness, who

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being on the "spot," gives all the information necessary for the establishment of factories, requiring but a small outlay of capital, and still less amount of brain force, to run successfully such an institution wherever milk is obtainable.

CORRESPONDENCE.

Mr. Editor:—Will you inform one of those miserable and ignorant pharmacists, "on the outskirts of the town," What is Emplastrum Thapsia? A prescription, no doubt intended for one of the centrally located stores, strayed into my hands the other day, calling for this preparation. Shall be pleased to get a little of that cosmopolitan knowledge of the drug business, which is said to lie "around loose" in the down town stores. "Outskirt."

Emplastrum Thapsia is the *Sparadrap d'emplâtre de Thapsia* of the French codex:

Take of Yellow Wax, 420 parts.
Resin,
White Turpentine, of each, 150 parts.
Venice Turpentine, 200 parts.

Apply gentle heat, and when liquidfied, add

Glycerin,
Honey (strained), of each, 50 parts.
Resin of Thapsia (consistence of honey), 75 parts.

Stir well until a plaster mass has formed.

Parrish's Pharmacy, (1874) page 326, has the following formula for

THAPSIA PLASTER.

Take of Alcohol, 3.5 parts.
Ether. 11.5 parts.
Pyroxylon paper, 1. part.
Resin Thapsia, 10. parts.

Spread with a brush on a piece of plaster at the moment it is required.

[Ed.]

LICORICE LOZENGES.

Mr. Editor:

Seeing from p. 325 that Mr. Wehrli recommends to improve the appearance of licorice by rubbing with oil or tinctures, reminds me of an observation I have made. I improved the quality of my licorice lozenges by pouring, for every pound, half a drachm of oil of aniseed into the jar, letting the oil run round to moisten the sides, then I add the lozenges, cover the jar, and shake well for a few minutes. The lozenges get impregnated with the oil, and consequently medicated, and, of course, infinitely better than before, at the same time they get a very handsome lustre. They sell readily with an advance of 50 per cent. on the old prices.

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BLACK INK.

If any one should bother you with a formula for black ink, the following is somewhat out of the usual line, but yields a good product as you see by this letter. Its cost is about 68 cents per gallon:

Take of Nutgalls in powder two ounces, percolate with Alcohol, four fluid ounces, continue percolation with water until one and a half pints are obtained.

Make a solution of Sulphate Iron, half an ounce,
Monsel's Salt, one ounce,
Water, one and half pint.

Mix the solutions cold, then dissolve in one pint of water, Gum Arabic, two ounces, and incorporate with the first by shaking; at last, rub up well half an ounce of Gallic Acid, with half a pint of water, and to the mixture, if considered necessary, add Oil of Cloves, ten drops, to prevent the ink from molding.

Philadelphia, Nov. 4th, 1874. H. M. WILDER.

EDITOR OF THE PHARMACIST:

Please inform a subscriber, What is QUININE BRUTE? What is its chemical composition and its history? We fear this has some flavor of "Sweet Quinine," or of some of the other nostrums of cinchona bark. Yours Respectfully,

H. P. COCHRANE.

The name "QUININE BRUTE" would signify to us, ***the crude alkaloid Quinia***, and, in our opinion, the dispenser is justified in the use of the ***alkaloid Quinia*** when prescribed by this name.

We have, however, lately been informed by the druggist who prepares it, that the article so designated is simply ***a precipitated extract of Cinchona bark***, such as found in the market under the name of "***Wetherill's*** " *or* "***Ellis'*** " ***Extract of Calisaya Bark.*** The process of which is published in ***Parrish's Pharmacy***, fourth edition, page 665.

It is to be regretted that physicians and pharmacists are frequently guilty of applying equivocal names to preparations, which leads to much confusion, and not unfrequently fatal errors. It is a duty we owe the profession, and the cause of humanity, to steer clear of such ambiguity, or when made use of, to advise the profession through the medium of the professional press. When this is not observed, the charge of an existing ***collusion*** or a non-observance of professional ethics is certainly to be expected. [ED.]

THE "TALISMAN."

To the Editor:

I found on a piece of waste paper a paragraph, which I will defy the wisdom and eloquence of the world to excel in solid worth. It has been in my possession nearly five years, and I think so much of it that I have framed it with my Certificate of Membership from the Wash. Pharmaceutical Association. I call it the "Talisman."

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I will give it in full, for the benefit of young pharmacists, and some *old ones*, too, who have some wrinkles it may assist in removing.

"To tell a man to his face to mind his own business, would be considered about equal to knocking him down, and yet it is one of the simplest rules of right conduct, and the most useful that mankind can adopt in their intercourse with each other. There is a great deal of the Paul Pry spirit in the human heart, or wonderful inquisitiveness in regard to the private affairs of friends and neighbors. This spirit makes more mischief in the community than almost any other cause, and creates more malice, envy and jealousy than can be overcome in a century. Let every man mind his own business, and there will not be *half the trouble in the world that there is at present!*"

I think if our "Brethren" could be induced to remember the Lord's Prayer, and con this little "Talisman" every morning, *before beginning the day's work*, many would become quiet and efficient workers, and prosperous and happy followers of our noble calling, who now go painfully and worryingly along, bearing the weight of others transgressions, real or imaginary, and never for a moment concerning themselves with their own.

Don't think for a moment that I am hard on the profession, for I love all members of it, the sinners as well as the saints, and if I could get them to think as I do, they would "mind their own business."

Respectfully,

HUGH DOUGLAS McCABE,
Registered Pharmacist.

TRANSACTIONS OF PHARMACAL COLLEGES AND SOCIETIES.

A special meeting of the Chicago College of Pharmacy, was held in the College Library, on Thursday, November 5th.

Minutes of previous meeting were read and approved.

Mr. Buck, chairman, read the report of the committee appointed to confer with the committees of the medical societies, as follows:

In submitting the report of the joint committee representing the Chicago Medical Society, the Chicago Society of Physicians and Surgeons, and the Chicago College of Pharmacy, your committee wish to lay before the College an explanatory statement.

It will be remembered that the instructions given to the joint committee by the several organizations referred to, recognized the existence of the abuses or evils complained of, and simply required of the committee a careful consideration, to result in whatever recommendations they might see fit to present.

The report we present for your adoption condemns the continuance of all practices conflicting with, or in opposition to, the accepted Code of Ethics; your committee consider it impossible upon any plea (business arrangements or otherwise), to make any distinction between the acceptance by physicians from pharmacists, of partial or free office rent, or the acceptance of commissions in money or other per-

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quisites. The Code of Ethics can only be regarded as an honourable compact for the observance and protection of all concerned; if it is found unfitted in any respect for the objects or purposes intended, such modifications or changes could be readily made, as would relieve the profession from the charges of inconsistency complained of, but in any event, your committee believe that the high standing of either profession, can only be maintained by the endeavors of all, to conform in spirit, as well as letter, with the requirements of the established Code of Ethics.

The resolution offered in reference to the matter of unofficinal formulæ, is, we think, a step in the right direction, and we do not doubt will meet with your hearty approval.

In conclusion we would remark, that the seeming delay in the preparation of the report of the joint committee, was in no wise the fault of any member of the same, but was attributable solely to the length of time required for its preparation. Respectfully submitted.

GEO. BUCK.

We the undersigned, members of a joint committee, consisting of delegates from the Chicago Medical Society, the Chicago College of Pharmacy, and the Chicago Society of Physicians and Surgeons, agree to report to our respective organizations, a recommendation of the passage of resolutions condemning the following practices:

1st. The payment of commissions by pharmacists to physicians, in the form of nominal or free office rental, money or perquisites.

2nd. The practice of any branch of medicine by pharmacists.

3rd. The use of prescription blanks, bearing the name of a pharmacist.

4th. The prescribing of medicines by adding to their titles that of a proprietor or patentee.

5th. The use of private formulæ, by which certain pharmacists exclusively, are enabled to compound prescriptions.

And we further agree to recommend the endorsement of the following resolution:

Resolved, That we fully endorse the project of the Chicago College of Pharmacy, by which it is proposed to prepare and publish a "Codex," or collection of formulæ, according to which any physician may order, and any pharmacist prepare, with greater uniformity and convenience, desirable compounds not enumerated in the United States Dispensatory, such Codex being subject at any time to addition or revision, by the several organizations herein concurring.

G. BUCK, T. H. PATTERSON, N. G. BARTLETT,	Chicago Col. of Pharm.
N. H. FOSTER, D. C. STILLIANS, C. W. EARLE,	Chicago Medical Society.
J. N. HYDE, W. HAY, J. H. ETHERIDGE,	Chi. Soc. Phys. and Surgs.

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After discussion the report was accepted, and all members were recommended to live up to the spirit of the Code of Ethics.

Mr. Ebert, chairman of the committee on unofficinal formulæ, made a verbal report of the action of the committee, who recommend that this College await the action of the committee of the A. P. A. appointed for the same purpose, so that if suitable this College may adopt the formulas devised by them; and they further recommend the publication of a Chicago book of formulæ.

The report was adopted, and the subject of the publication was referred to the Board of Trustees, with authority to act. Mr. Sargent offered the following resolution which was adopted.

Resolved, That this College condemns the acts of physicians, in writing prescriptions in a manner and form unintelligible to educated pharmacists, as in cypher, or a preconcerted secret phraseology, not recognized in our text-books, such practice being unprofessional and unfair to our profession.

Adjourned. J. J. SIDDALL, *Secretary.*

CALIFORNIA COLLEGE OF PHARMACY.

The second annual meeting of the California College of Pharmacy, was held on November 4th. The following Board of Trustees was elected for the ensuing year: Wm. M. Searby, Wm. Geary, W. T. Wenzel, G. G. Burnett and E. Painter, of whom W. T. Wenzel was elected president, Wm. Geary, treasurer, and Emlen Painter, secretary. The affairs of the college present a very satisfactory condition, showing the institution to be thoroughly established on a firm footing.

The second course of lectures commenced on the 16th of June, with W. M. Searby, Prof. of Materia Medica; J. Calvert, Prof. of Pharmacy; Wm. T. Wenzel, Prof. of Chemistry and Dr. H. Behr, Prof. of Botany. There are 24 matriculants in the present class, and all lectures are well attended. The present course ends on December 18th. Hereafter it is proposed to commence the course on the second Tuesday in March, thus occupying the spring and summer months, in place of fall and winter, as in other colleges.

WASHINGTON PHARMACEUTICAL ASSOCIATION.

The regular annual meeting of the Washington Pharmaceutical Association, was held at the hall of the Association, 477 Pennsylvania Avenue, Wednesday evening, November 4th, 1874. Mr. Robert P. Southall in the chair, and Charles S. Price, secretary.

The reading of the journal was dispensed with.

The president presented his report, which, though concise, embraced the doings of the Association since his occupancy of the chair, being only a few months. In closing his address he congratulated the Asssociation on its rapid increase of membership, and pointed with pride to its record as a pharmaceutical organization,

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which he thought would compare with any similar organization in the country. The recording secretary submitted his report, showing the condition of the Association, financially, to be sound, and with such suggestions as would prove beneficial to the Association in the future. The treasurer's report embodied a complete statement of the receipts and disbursements during the year. His report showed that all bills had been paid, amounting to $400, and that a cash balance of $125 remained in the treasury. The register reported the names of forty-three (43) active and eighteen (18) honorary members on the rolls to date, with two (2) resignations, one (1) dropped and seven (7) expelled since the organization.

An election of officers was held with the following result: President, Wm. T. Baldus; vice-president, John T. Cole; recording secretary, Charles S. Price; corresponding secretary, John B. Gibbs; treasurer, Charles H. Warren; register, R. H. M. Harrison; board of directors, Robert P. Southall, Fred. A. Tschiffally, Jr., George R. Reynolds, Wm. T. Baldus, Charles S. Price, *ex officio*.

ST. LOUIS COLLEGE OF PHARMACY.

At the annual meeting of the St. Louis College of Pharmacy, held Sept. 28, 1874, the following officers were elected for the ensuing year:

Charles Habicht, president; J. M. Good, vice-president; Charles L. Lips, treasurer; E. P. Walsh, secretary; Wm. H. Crawford, C. K. Jones, Charles Bang, F. X. Crawley, Wm. R. Grant, Board of Trustees.

The faculty continues as last year with Theo. Fay, M. D., professor of chemistry and dean of the faculty; Otto Wall, M. D., professor of materia medica; Hubert Primm, Ph. D., professor of pharmacy.

The college has opened its winter session with a class of sixty-eight students, being an increase of twenty-six over last year, and the number, it is expected, will be increased.

The following gentlemen constitute the board of pharmacy: Theo. Kalb, president; J. M. Good, secretary; Chas. Habicht, F. X. Crawley, M. W. Alexander.

The board held semi-weekly meetings for the purpose of examination and registration of pharmacists commencing Tuesday, Aug. 4, 1874, and ending Tuesday, Oct. 2, 1874. The whole number registered, being those who, by the law, were exempt from examination, was 174. The whole number examined was 72; of the latter 16 failed to pass. The board will meet again in November, commencing Tuesday 3, 1874.

REVIEWS AND BOOK NOTICES.

Clinical Lectures on Diseases of the Nervous System. By William A. Hammond, M. D. Reported, edited and prepared for the press, by T. M. B. Cross, M. D. Cloth, 8vo., pp. 290. New York: D. Appleton & Company.

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The limited space at our disposal will prevent any extended analysis of this excellent work. It may be said to be the supplement to Dr. Hammond's Treatise on Diseases of the Nervous System, and with it forms a most exhaustive exposition of this specialty. These lectures are replete with terse definitions, and set forth in a few sentences the theory of healthful and diseased nerve action, which in regular text-books would occupy pages.

The therapeutics of nervous diseases is given at considerable length; the proper doses of the medicines are indicated and their action explained. Concerning Ergot, in the treatment of spinal paralysis, he speaks as follows: "Of the fluid extract, I give about one fluidrachm three times a day. This dose is said to be equivalent to about one hundred grains of the powder, but this must be a mistake; for I find practically that I get about as much effect from thirty grains of the powder as from a fluidrachm of Squibb's extract. You will sometimes be warned that such doses will cause gangrene. Probably there is not a single authentic case on record of gangrene resulting simply from the use of ergot. It is true that gangrene does occur where ergotized rye is used as food, but this is due not to the presence of ergot, but to the absence of fresh meat, and almost everything else from the dietary of the poorer classes." As an indication of the thoroughness and care which Dr. Cross has bestowed upon the series of cases he has reported, we may say that in many of them he has taken the trouble to re-examine the patients many months after their treatment has been suspended, in order to verify its effects and learn their present condition of health.

We may safely assure the physician that the volume is one of great practical value, fully abreast of the latest and best established theories and practice in Diseases of the Nervous System. The book reflects credit upon the publishers. R. E. S.

Central Organ der Deutschen Apotheker, Arzte, und Drogisten in den Vereinigten Staaten. Herausgegeben von A. G. F. Streit, Ph.D., und Otto Max Huncke. Belleville, Illinois. Office, No. 312 East Main Street. Erscheint Monatlich, abonnements-preis $1.25 per jahr.

The initial number of this new claimant for pharmacal honors and support, is promised with the commencement of the new year. A pharmacal journal printed in the German language, has a large field of usefulness before it, and we hope it may merit the support of the profession of this country who are conversant with the language.

Die Chemische Werthbestimmung einiger starkwirkender Droguen und der aus ihnen angefertigten ARRNEIMISCHUNGEN by Dr. G. Dragendorff, Professor of Pharmacy at the University of Dorpat, Russia; Honorary Member of the Chicago College of Pharmacy, etc. 1 vol., 126 pp. St. Petersburg, 1874.

Transactions of the Medical Society of the District of Columbia. Washington, D. C. October, 1874.

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